Australian Government

Australian Radiation Protection and Nuclear Safety Agency

ARPANSA National Diagnostic Reference Level Survey User Guide

Version 1.2

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1 INTRODUCTION

1.1 PURPOSE OF THE AUSTRALIAN NATIONAL DIAGNOSTIC REFERENCE LEVEL SURVEY

The purpose of the Australian National Diagnostic Reference Level Survey is to gather data that will be used to establish and update National Diagnostic Reference Levels for common diagnostic imaging procedures.

The survey is being conducted by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), in consultation with various stakeholders. These stakeholders include

- Royal Australian and New Zealand College of Radiology (RANZCR)
- Australian Institute of Radiography (AIR)
- Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM)
- Australian and New Zealand Society of Nuclear Medicine (ANZSNM)
- Department of Health and Aging (DoHA)
- State and Territory Regulators

1.2 WHAT ARE DIAGNOSTIC REFERENCE LEVELS?

Put simply a Diagnostic Reference Level, or DRL, is a method for evaluating whether the patient dose, with regard to stochastic effects, is unusually high or low for a particular medical imaging procedure[1].

Diagnostic Reference Levels apply to radiation exposure of patients resulting from procedures performed for medical imaging purposes[2].

The objective of a diagnostic reference level is to help avoid radiation dose to patient that does not contribute to the clinical purpose of a medical imaging task[1].

A Diagnostic Reference Level is not a dose constraint It should be applied with flexibility, to allow higher doses where indicated by sound clinical judgment[3].

1. ICRP Publication 105, Radiological Protection in Medicine, Vol. 37 No. 6, 2007
2. ICRP Publication 103, The 2007 Recommendations of the International Commission on Radiological Protection, Vol.37 No. 2-4, 2007
3. ICRP Publication 60, 1990 Recommendations of the International Commission on Radiological Protection, Vol.21 No.1-3, 1991

1.3 WHO IS PARTICIPATING?

All practices in Australia that carry out diagnostic imaging procedures are invited to participate and all participation is voluntary.

1.4 SURVEY FORMAT

The Australian National Diagnostic Reference Level Survey is an online survey. The survey can be accessed via the services section on the ARPANSA web page.

http://www.arpansa.gov.au

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Dr Carl-Magnus Larsson, Chief Executive Officer of ARPANSA, chaired the International Atomic Energy Agency's recent International Experts Meeting on Decommissioning and Remediation After a Nuclear Accident.
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ELF Magnetic Field Meter Hire
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Paediatric DRLs information
Fact Sheet
Before You Register
Before You Enter Data
Understanding Your Report
NDRL Login
Australian National Radiation Dose Register (ANRDR)
National Diagnostic Reference Level Survey
Australian Government Department of Health and Ageing
The Royal Australian and New Zealand College of Radiologists
ACPSEM Australasian College of Physical Scientists & Engineers in Medicine
Current Australian National Diagnostic Reference Levels for MDCT
Introducing the National Diagnostic Reference Level Database
The purpose of the Australian National Diagnostic Reference Level Survey is to gather individual practice data that will be collated and used to establish National Diagnostic Reference Levels for common diagnostic imaging procedures.
The objective of developing DRLs is to establish a measure of indicative doses for current diagnostic imaging practice in Australia, allowing individual practices to compare their doses against those of their peers.
Initially the survey is collecting data on Multi Detector Computed Tomography doses only. Further website developments will encompass other medical radiation imaging modalities such as interventional/fluoroscopic and general examinations, mammography and nuclear medicine.
A comprehensive, confidential dosimetry report will be made available to the submitting practice for each data set. This report will detail your practices doses compared with Australian National DRLs.
These ARPANSA reports can be used as evidence of compliance with ARPANSA Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation, RPS 14, Section 3.1.8(a).
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The collection of survey data is entirely online. There are no physical paper mail outs but it is possible to print forms and pages of the survey from the web.

To participate in the survey you must first register your practice online via the website. Once registered you may then access the data entry sections of the survey.

1.5 WHAT DATA WILL BE COLLECTED?

Initially the Australian National Diagnostic Reference Level Survey will collect data on CT imaging only. Other modalities, such as Interventional, Fluoroscopy, Mammography and Nuclear Medicine will follow in time.

The CT section of the survey asks for data on six common protocols for three age groups.
The three age groups are

- Baby/Infant (0-4 years)
- Child (5-14 years)
- Adult (15+ years)

The six protocols are

- CT Head
- CT Neck*
- CT Chest
- CT AbdoPelvis
- CT ChestAbdoPelvis*
- CT Lumbar Spine*

**Indicates a protocol available only for the Adult age group*

For more information on the scan margins for each protocol see Appendix A.

For each protocol we require technical parameter data on the protocol settings used as well as basic dose data from 20 patients. The technical data includes the following fields

- kVp
- starting or reference mAs
- pitch
- if contrast media was used
- if dose modulation was used
- rotation time
- the number of phases
- if the image was acquired helically or axially
- detector configuration
- if iterative reconstruction was used
- reconstruction slice width
- reconstruction algorithm/kernel
- scan field of view
- beam shaping filter
- noise index

More specific information on what is required for each of these fields is given in Appendix B.

The basic dose data from 20 patients includes

- The average $CTDI_{vol}$ for the examination*
- The total Dose Length Product (DLP) for the examination*
- The patient weight in kg
- The patient age in years (months for baby/infant age group)
- The patient gender

More specific information on what is required for each of these fields is given in Appendix C.

***Information on how to report the $CTDI_{vol}$ and DLP for acquisitions that involve multiple runs, e.g. with and without contrast or ChestAbdoPelvis scans done in two parts is given in** Appendix C.

Each set of data collected will be used to calculate a Practice Reference Level (PRL) that is specific to the protocol, age group and CT Scanner used.

For practices with more than one scanner at the **one** location (ie. same LSPN)

- A practice reference level is defined by the protocol chosen, the age group and the scanner it was acquired on. Therefore an LSPN with multiple scanners could have multiple PRLs for the same age group and protocol. Each individual protocol should then be compared against the Australian National DRL.

1.6 WILL FEEDBACK BE GIVEN TO PARTICIPATING PRACTICES?

All participating practices will receive reports detailing how their individual Practice Reference Level for each protocol compares with the national Diagnostic Reference Level for that protocol. Reports will be generated when each data set is submitted so practices may complete the survey at their own pace. There will, however, be a cut off time for submitting data sets based on the calendar year, after which you will no longer be able to access your data.

For a detailed explanation of the reports see section 6.3.

Table of Contents

2 REGISTRATION PROCESS

2.1 INTRODUCTION

In order to participate in the survey each practice must first register their details. This is to ensure all data submitted is legitimate and to ensure that each participating practice is recognised.

2.2 INFORMATION COLLECTED IN THE REGISTRATION PROCESS

The registration process involves collection of the following data

- Practice Details
- Radiologist Details
- CT Scanner Details
- Contact Person Details

2.3 SPECIFICS OF INFORMATION COLLECTED

2.3.1 Practice Details

Practice Name – This should be the name of the practice as registered with Medicare Australia.

Practice LSPN – This is the Location Specific Practice Number as registered with Medicare Australia.

Practice Type – There are four options for Practice Type

- Public Clinic in a Public Hospital
- Private Clinic in a Public Hospital
- Private Clinic in a Private Hospital
- Private Clinic

Practice Address – This should be the address of the practice as registered with Medicare Australia.

2.3.2 Radiologist Details

This refers to the Radiologist in Charge of the Practice or the Head of Department if your practice is part of a large Hospital/Organisation.

The mandatory details required are

- Title
- Family Name
- First Name
- Phone (Office)
- Email

Non mandatory details that can be provided are

- Phone (mobile)
- Fax

2.3.3 CT Scanner Details

This refers to the CT Scanners in use at your practice.

The mandatory details required are

- Scanner Make
- Scanner Model (as defined by the manufacturer)
- Additional Identifier

The 'Additional Identifier' field is intended as a tool for you at your practice to help differentiate between CT Scanners, particularly if you have more than one CT Scanner of the same make and model. What you enter in the 'Additional Identifier' field is entirely up to you but we suggest that it reflect the location of the CT Scanner, e.g. 'Emergency CT', 'Room 1' or '2nd Floor, East Wing', etc.

Please note that the 'Additional Identifier' field is mandatory even if your practice only has one CT Scanner.

2.3.4 Contact Details

This refers to another person at your practice who will, in most instances, manage the survey, for e.g. the Chief Radiographer, CT Supervisor or Medical Physicist, etc.
It is expected that this person will be registering the practice.

The mandatory details required are

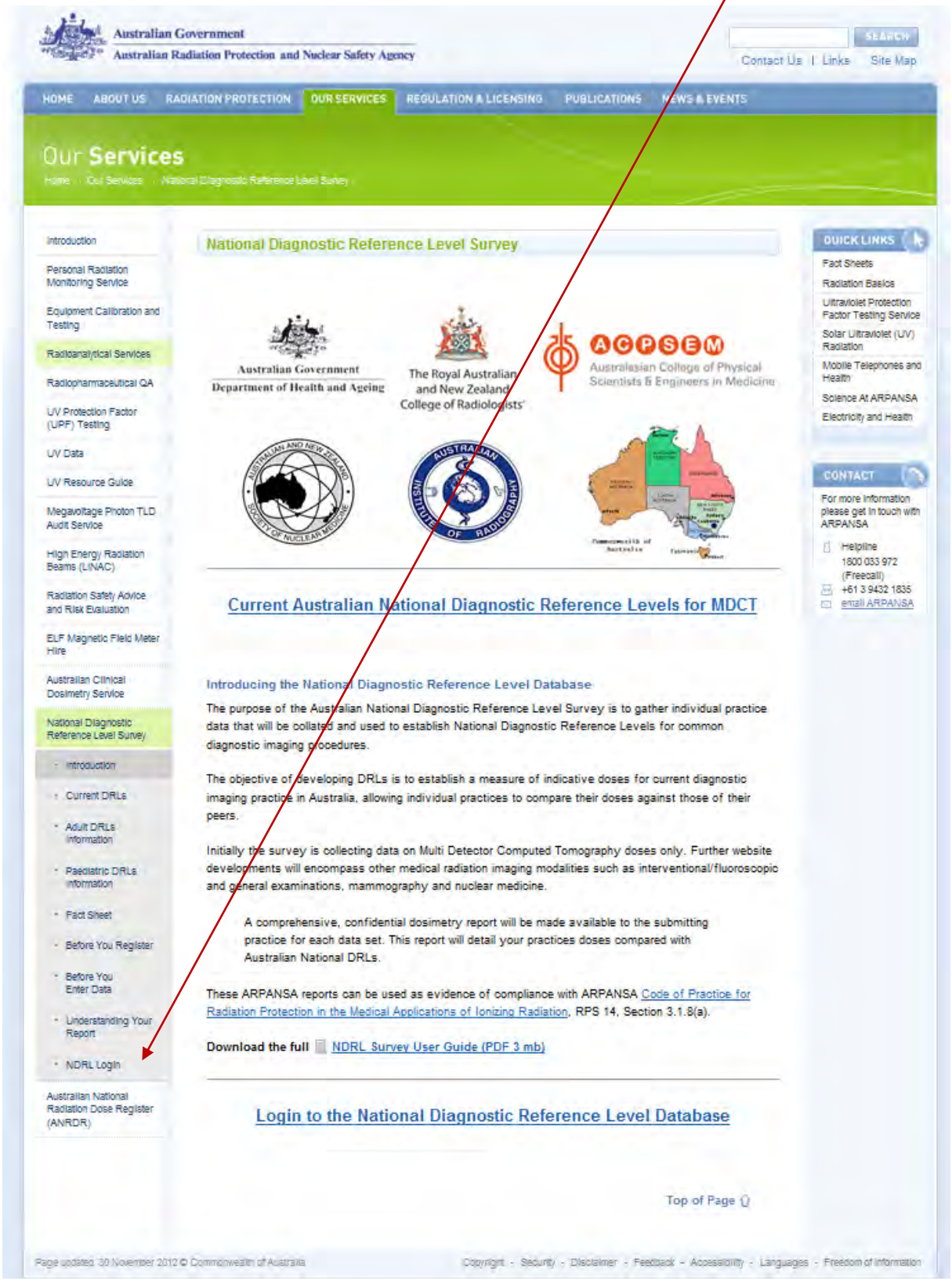
- Title
- Family Name
- First Name
- Phone (Office)
- Email

Non mandatory details that can be provided are

- Occupation (e.g. Head Radiographer, CT Supervisor etc)
- Phone (mobile)
- Fax

2.4 HOW TO REGISTER

From the NDRLD page on the ARPANSA website select • NDRL Login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Australian Government
Department of Health and Ageing
The Royal Australian and New Zealand College of Radiologists
ACPSEM
Australasian College of Physical Scientists & Engineers in Medicine
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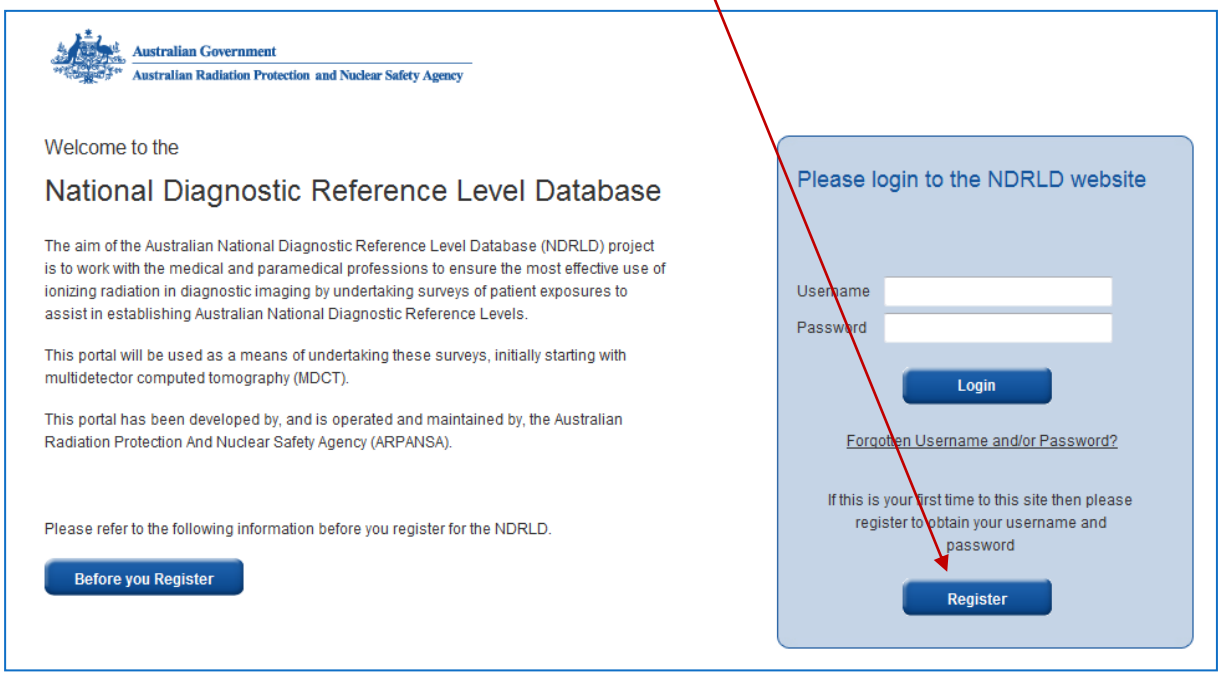
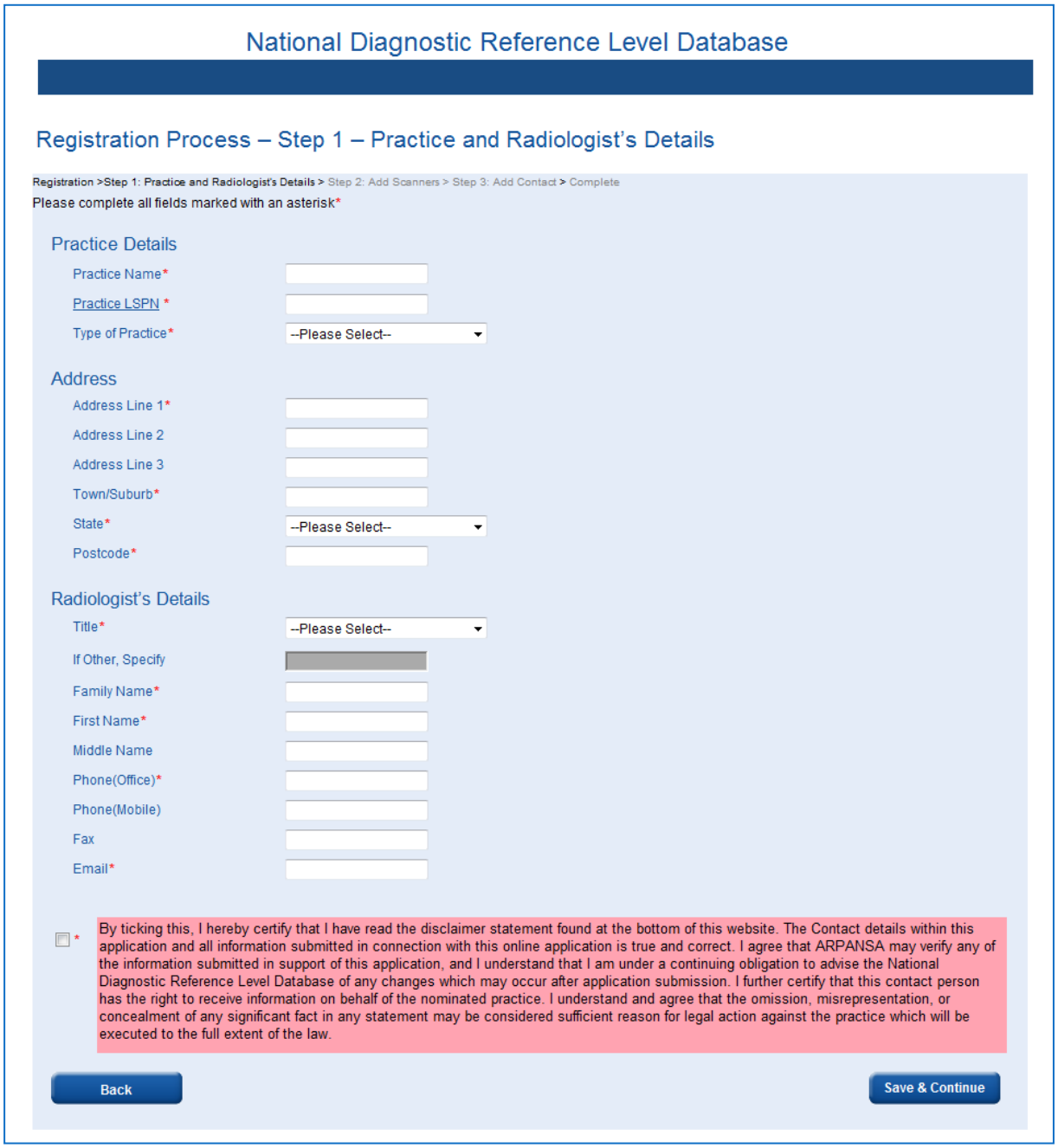
From the **Login** page you should select Register


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
Welcome to the
National Diagnostic Reference Level Database
The aim of the Australian National Diagnostic Reference Level Database (NDRLD) project is to work with the medical and paramedical professions to ensure the most effective use of ionizing radiation in diagnostic imaging by undertaking surveys of patient exposures to assist in establishing Australian National Diagnostic Reference Levels.
This portal will be used as a means of undertaking these surveys, initially starting with multidetector computed tomography (MDCT).
This portal has been developed by, and is operated and maintained by, the Australian Radiation Protection And Nuclear Safety Agency (ARPANSA).
Please refer to the following information before you register for the NDRLD.
Before you Register
Please login to the NDRLD website
Username
Password
Login
Forgotten Username and/or Password?
If this is your first time to this site then please register to obtain your username and password
Register

This will take you to the first stage in the registration process which is the **Practice and Radiologist Details**.

2.4.1 Practice Details and Radiologist Details

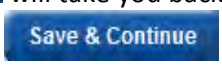

National Diagnostic Reference Level Database
Registration Process – Step 1 – Practice and Radiologist's Details
Registration >Step 1: Practice and Radiologist's Details > Step 2: Add Scanners > Step 3: Add Contact > Complete
Please complete all fields marked with an asterisk*
Practice Details
Practice Name*
Practice LSPN *
Type of Practice*
--Please Select--
Address
Address Line 1*
Address Line 2
Address Line 3
Town/Suburb*
State*
--Please Select--
Postcode*
Radiologist's Details
Title*
--Please Select--
If Other, Specify
Family Name*
First Name*
Middle Name
Phone(Office)*
Phone(Mobile)
Fax
Email*
By ticking this, I hereby certify that I have read the disclaimer statement found at the bottom of this website. The Contact details within this application and all information submitted in connection with this online application is true and correct. I agree that ARPANSA may verify any of the information submitted in support of this application, and I understand that I am under a continuing obligation to advise the National Diagnostic Reference Level Database of any changes which may occur after application submission. I further certify that this contact person has the right to receive information on behalf of the nominated practice. I understand and agree that the omission, misrepresentation, or concealment of any significant fact in any statement may be considered sufficient reason for legal action against the practice which will be executed to the full extent of the law.
Back
Save & Continue

For more information on the specifics of any mandatory fields see section 2.3.1 and 2.3.2. Also, the title of some details are hyperlinked to a help page which provides more information.

Once you have filled in all fields marked with an * and checked the disclaimer box you should select

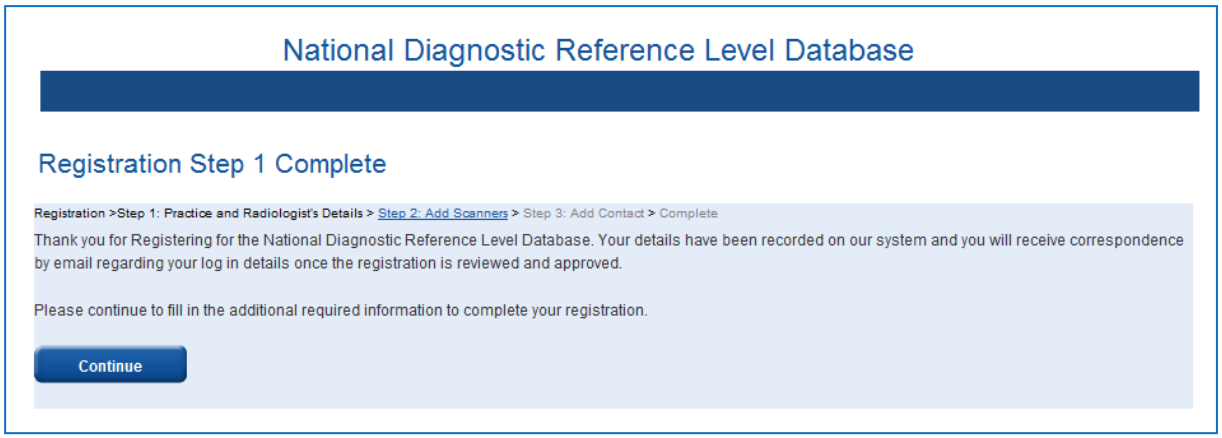
.

Selecting

will take you back to the log in page and none of your data will be saved, we recommend you select 

to proceed through the remainder of the registration process.

You will then be taken to the **Registration Step 1 Complete** Page.


National Diagnostic Reference Level Database
Registration Step 1 Complete
Registration >Step 1: Practice and Radiologist's Details > Step 2: Add Scanners > Step 3: Add Contact > Complete
Thank you for Registering for the National Diagnostic Reference Level Database. Your details have been recorded on our system and you will receive correspondence by email regarding your log in details once the registration is reviewed and approved.
Please continue to fill in the additional required information to complete your registration.
Continue

At this stage your Practice and Radiologist details will be sent to the survey administrators, once these details have been confirmed as valid the Radiologist will be sent an email listing a username and temporary password.

By selecting

you will proceed through the remainder of the registration process.

If you close the window at this stage, only the Radiologist will be able to login and complete the registration process when their details have been approved and they receive a username and temporary password. We recommend that you select

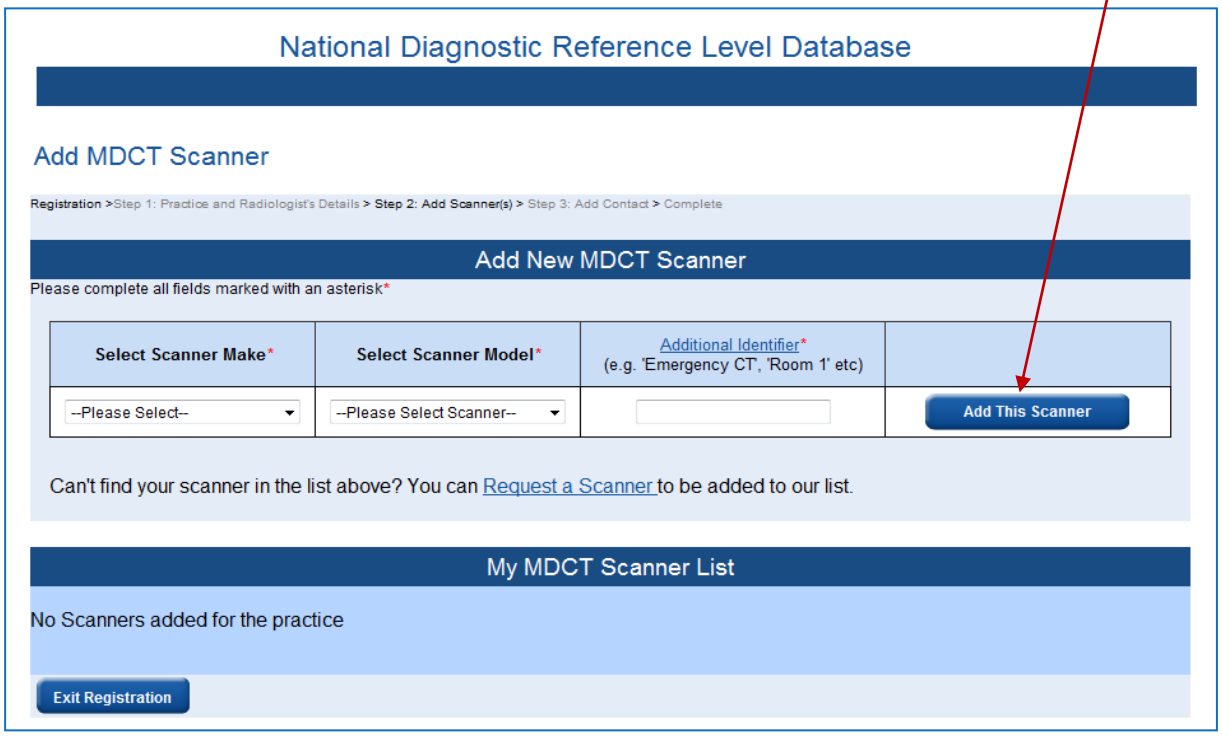
to proceed through the remainder of the registration process.

The next step in the registration process is the **Add MDCT Scanner Details**.

2.4.2 MDCT Scanner Details

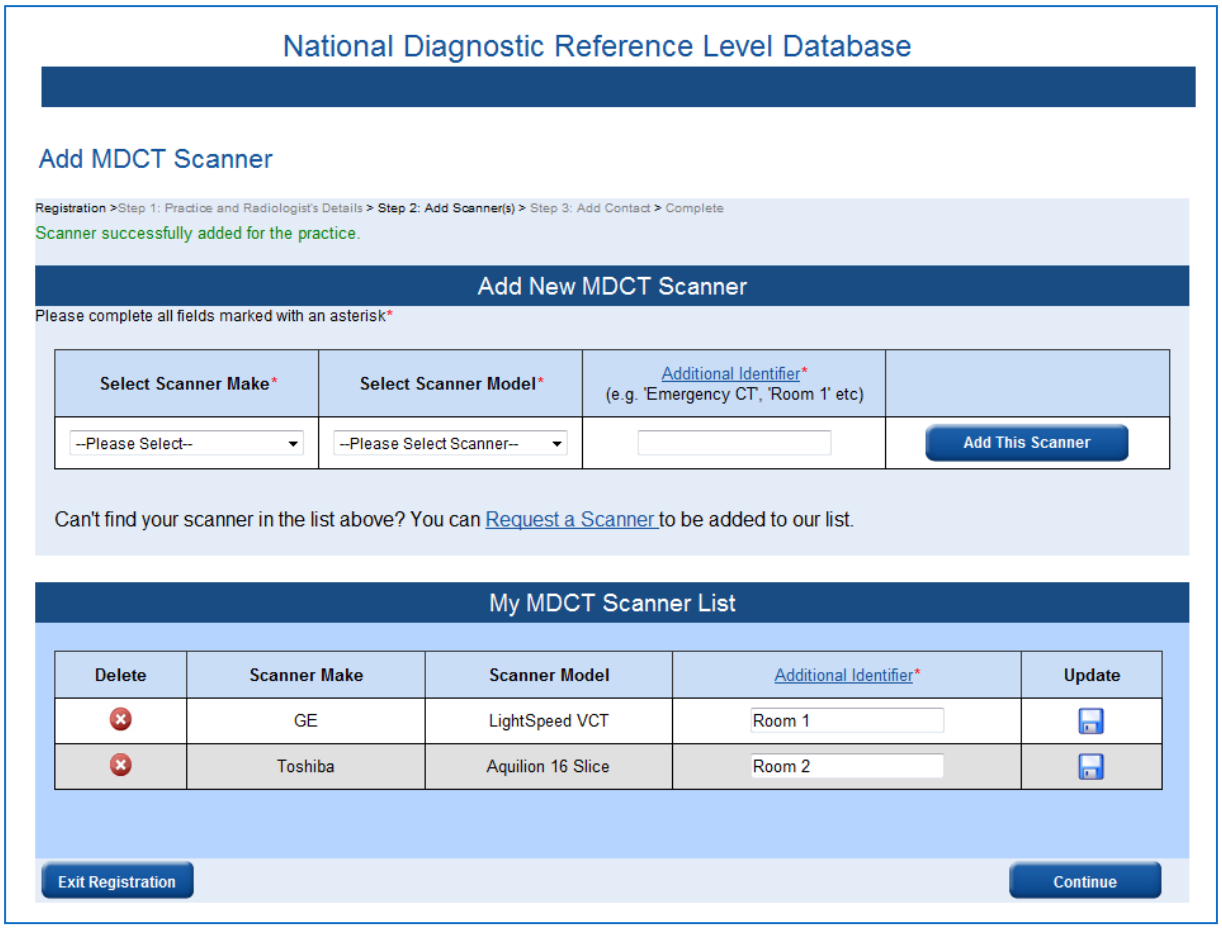
In this section you are required to give information on the make and model of each CT Scanner related to the LSPN at your practice.

To add a scanner to your list of scanners you should select the make and model of the scanner from the drop down lists, fill in the 'Additional Identifier' field, then select Add This Scanner


National Diagnostic Reference Level Database
Add MDCT Scanner
Registration >Step 1: Practice and Radiologist's Details > Step 2: Add Scanner(s) > Step 3: Add Contact > Complete
Add New MDCT Scanner
Please complete all fields marked with an asterisk*
Select Scanner Make*
Select Scanner Model*
Additional Identifier*
(e.g. 'Emergency CT', 'Room 1' etc)
--Please Select--
--Please Select Scanner--
Add This Scanner
Can't find your scanner in the list above? You can Request a Scanner to be added to our list.
My MDCT Scanner List
No Scanners added for the practice
Exit Registration

For more information on the 'Additional Identifier' please see section 2.3.3.

Once you have added a CT Scanner it will appear under 'My MDCT Scanner List'.


National Diagnostic Reference Level Database
Add MDCT Scanner
Registration >Step 1: Practice and Radiologist's Details > Step 2: Add Scanner(s) > Step 3: Add Contact > Complete
Scanner successfully added for the practice.
Add New MDCT Scanner
Please complete all fields marked with an asterisk*
Select Scanner Make*
Select Scanner Model*
Additional Identifier* (e.g. 'Emergency CT', 'Room 1' etc)
--Please Select--
--Please Select Scanner--
Add This Scanner
Can't find your scanner in the list above? You can Request a Scanner to be added to our list.
My MDCT Scanner List
Delete
Scanner Make
Scanner Model
Additional Identifier*
Update
GE
LightSpeed VCT
Room 1
Toshiba
Aquilion 16 Slice
Room 2
Exit Registration
Continue

To delete a CT Scanner from this list you select the next to the CT Scanner you wish to delete. To alter the 'Additional Identifier' for a CT Scanner you should alter the text in the field then select to save your changes.

Please note that if your practice does have more than one CT scanner it is not mandatory to provide dose data for each individual machine. It is, however, mandatory to list each individual machine.

If your CT Scanner is not listed

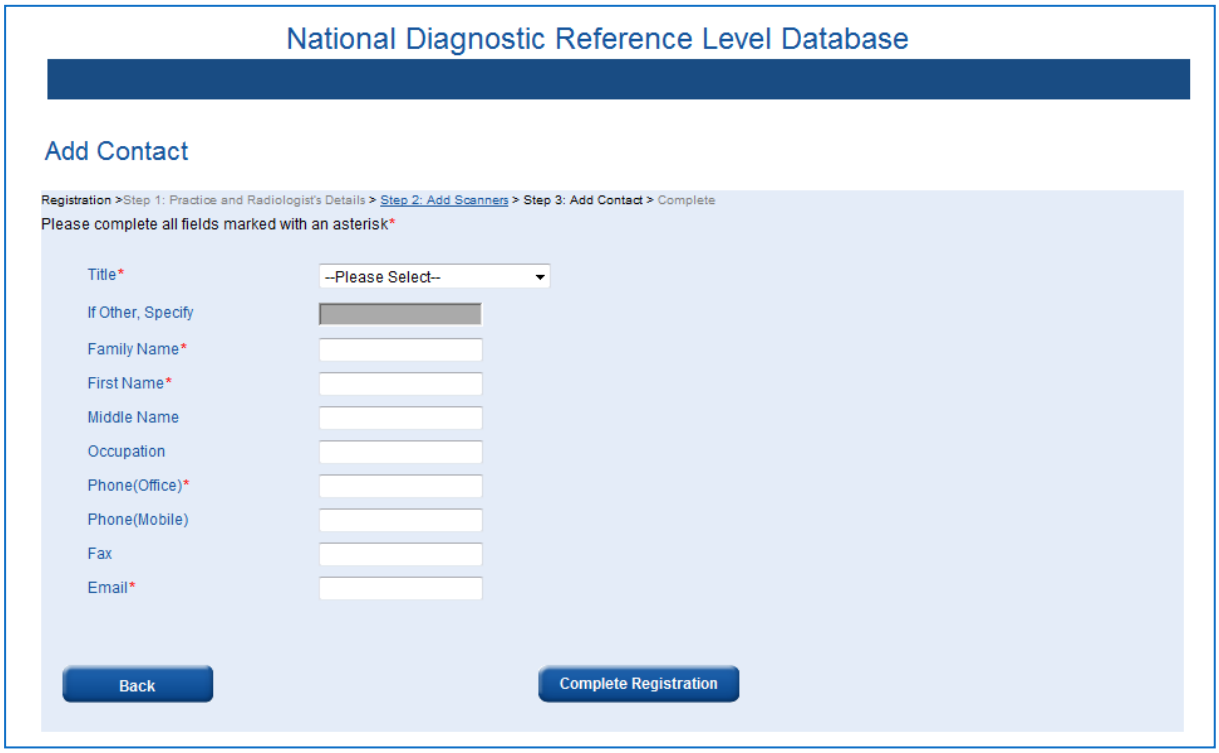
The CT Scanner Models are listed as defined by the manufacturer. If a CT scanner at your practice is not in the drop down lists you can select '--Can't find my Scanner Make--'/'--Can't find my Scanner Model--' from either the 'Make' or 'Model' drop down list or Request a Scanner, see section 2.5 for more details.

Once you have listed all the CT Scanners at your practice you should select Continue.

By selecting Exit Registration the data entered will be saved but you will be logged out of the registration process. Only the Radiologist will be able to login and complete the registration process when their details have been approved and they receive a username and temporary password. We recommend that you select Continue to proceed through the remainder of the registration process.

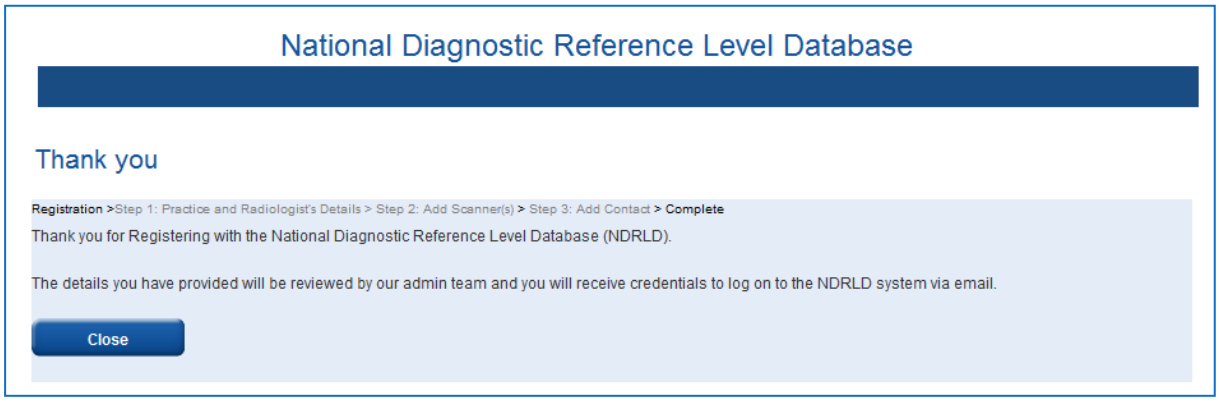
This will take you to the final part of the registration process which is the **Add Contact Details**.

2.4.3 Contact Person Details



For more information on the specifics of any mandatory field see section 2.3.4.

Once you have filled in all fields marked with an * you should select Complete Registration.


National Diagnostic Reference Level Database
Thank you
Registration >Step 1: Practice and Radiologist's Details > Step 2: Add Scanner(s) > Step 3: Add Contact > Complete
Thank you for Registering with the National Diagnostic Reference Level Database (NDRLD).
The details you have provided will be reviewed by our admin team and you will receive credentials to log on to the NDRLD system via email.
Close

This completes the registration process. Once the details you have submitted have been checked by a survey administrator, a username and temporary password will be emailed to the Radiologist and Contact Person within five working days.

These usernames and temporary passwords can then be used to login from the **Login** page.

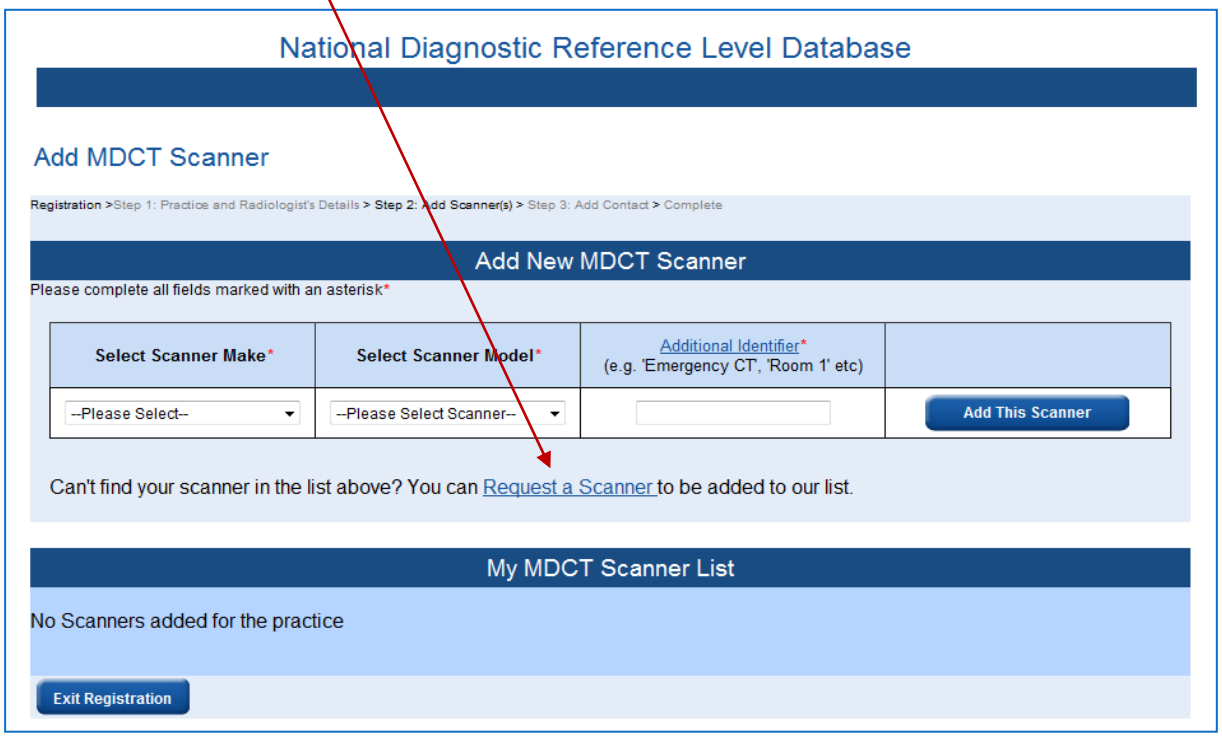
Selecting Close will close the webpage.

By selecting Back you will return to the CT Scanner Details Page and none of the data you entered will be saved.

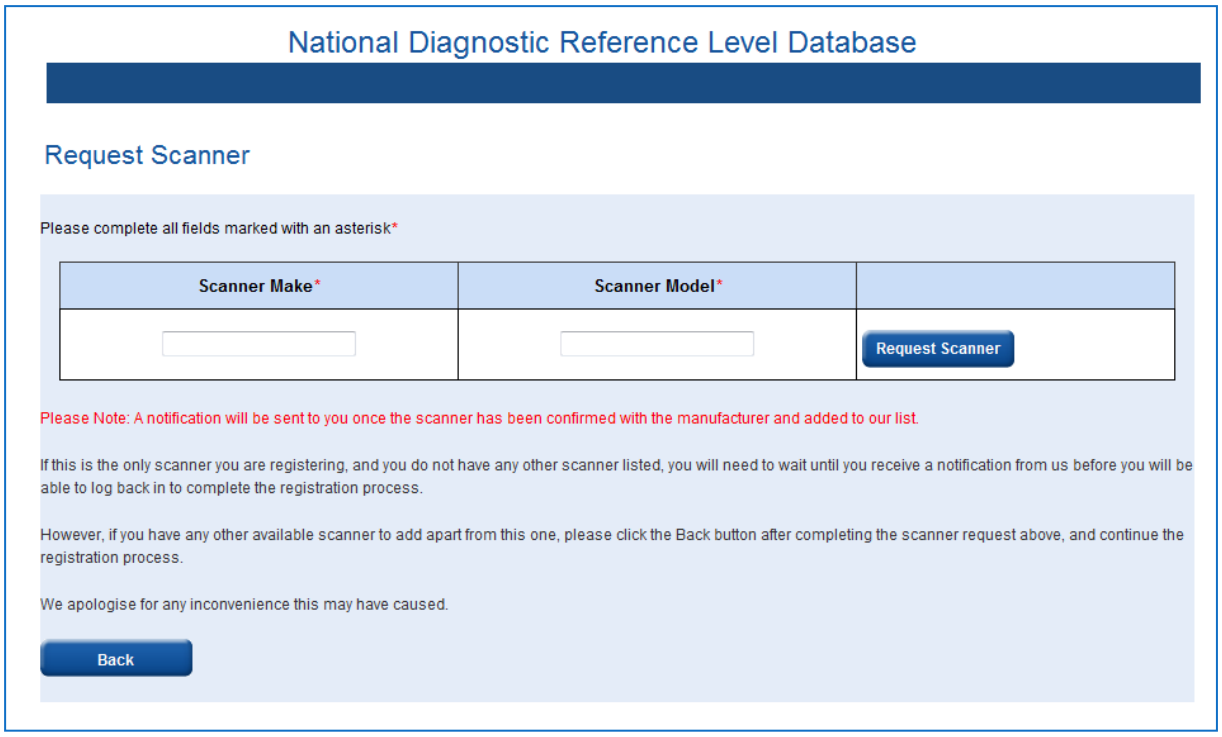
2.5 MY CT SCANNER IS NOT LISTED?

The survey administrators have ensured that all CT Scanners in current use in Australia are listed in the drop down boxes. The CT Scanners in the drop down lists are worded as defined by the manufacturer so please check the wording carefully.

If a CT Scanner in use at your practice is not in the drop down lists you should select '--Can't find my Scanner Make--'/'--Can't find my Scanner Model--' from either the 'Make' or 'Model' drop down list or Request a Scanner from the Scanner Details page.


National Diagnostic Reference Level Database
Add MDCT Scanner
Registration >Step 1: Practice and Radiologist's Details > Step 2: Add Scanner(s) > Step 3: Add Contact > Complete
Add New MDCT Scanner
Please complete all fields marked with an asterisk*
Select Scanner Make*
Select Scanner Model*
Additional Identifier*
(e.g. 'Emergency CT', 'Room 1' etc)
--Please Select--
--Please Select Scanner--
Add This Scanner
Can't find your scanner in the list above? You can Request a Scanner to be added to our list.
My MDCT Scanner List
No Scanners added for the practice
Exit Registration

This will take you to the **Request Scanner** page.


National Diagnostic Reference Level Database
Request Scanner
Please complete all fields marked with an asterisk*
Scanner Make*
Scanner Model*
Request Scanner
Please Note: A notification will be sent to you once the scanner has been confirmed with the manufacturer and added to our list.
If this is the only scanner you are registering, and you do not have any other scanner listed, you will need to wait until you receive a notification from us before you will be able to log back in to complete the registration process.
However, if you have any other available scanner to add apart from this one, please click the Back button after completing the scanner request above, and continue the registration process.
We apologise for any inconvenience this may have caused.
Back

On this page there are two fields where you can type in the make and model of your scanner. Once you have filled in both fields you should select Request Scanner and a notification will be sent to the survey administrators.

- If you are requesting a CT Scanner during the registration process and this is the only scanner you are registering and you do not have any other CT Scanners listed, you cannot complete the registration process at this time. You should select Back, then select Exit Registration on the CT Scanner Details page.

  The Radiologist will receive notification from the survey administrator via email once the CT Scanner has been added to the system. Once the Radiologist has received this notification they will be able to login and complete the registration process.

- If you have any other available CT Scanner to add apart from this one, please select Back after completing the CT Scanner request above, and continue the registration process.

- If you have already completed the registration process and are adding another CT Scanner you should select Back or use the menu items on the left hand side of the screen to navigate to another page.

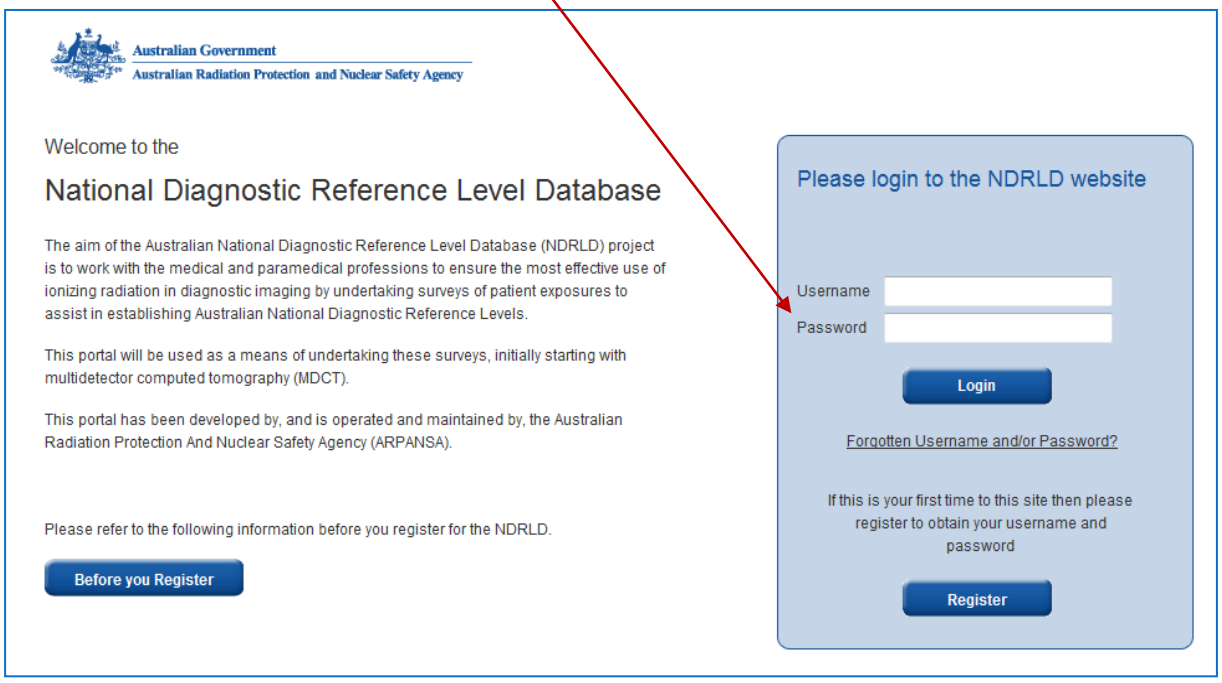
3 LOGGING IN

3.1 WHY DO I NEED TO LOG IN?

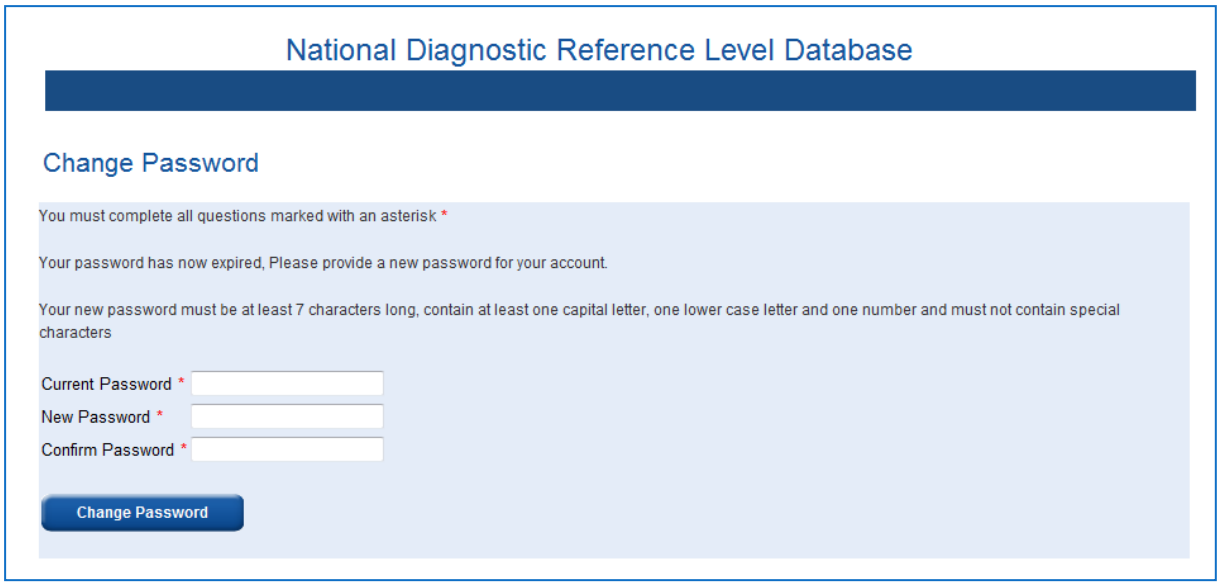
To access the survey you are required to login with a username and password. This is to ensure that all data submitted is legitimate, that each participating practice is recognised and that the data for your site can only be accessed by authorised persons.

3.2 FIRST LOGIN

Once you have been issued with a username and temporary password you will be able to use these to login to the system from the Login page.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
Welcome to the
National Diagnostic Reference Level Database
The aim of the Australian National Diagnostic Reference Level Database (NDRLD) project is to work with the medical and paramedical professions to ensure the most effective use of ionizing radiation in diagnostic imaging by undertaking surveys of patient exposures to assist in establishing Australian National Diagnostic Reference Levels.
This portal will be used as a means of undertaking these surveys, initially starting with multidetector computed tomography (MDCT).
This portal has been developed by, and is operated and maintained by, the Australian Radiation Protection And Nuclear Safety Agency (ARPANSA).
Please refer to the following information before you register for the NDRLD.
Before you Register
Please login to the NDRLD website
Username
Password
Login
Forgotten Username and/or Password?
If this is your first time to this site then please register to obtain your username and password
Register

On your first log in you will be required to change your temporary password.

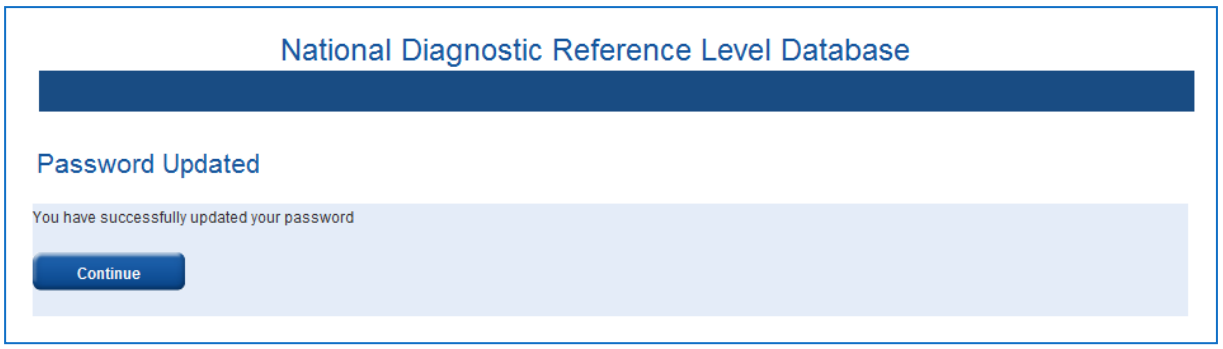

National Diagnostic Reference Level Database
Change Password
You must complete all questions marked with an asterisk *
Your password has now expired, Please provide a new password for your account.
Your new password must be at least 7 characters long, contain at least one capital letter, one lower case letter and one number and must not contain special characters
Current Password *
New Password *
Confirm Password *
Change Password

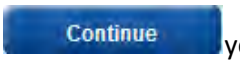
When changing your password you must choose a new password that

- is at least seven characters long
- contains at least one capital letter
- contains at least one number

Once you have filled in all fields marked with a * correctly you should select

and you will be notified that you have successfully updated your password.

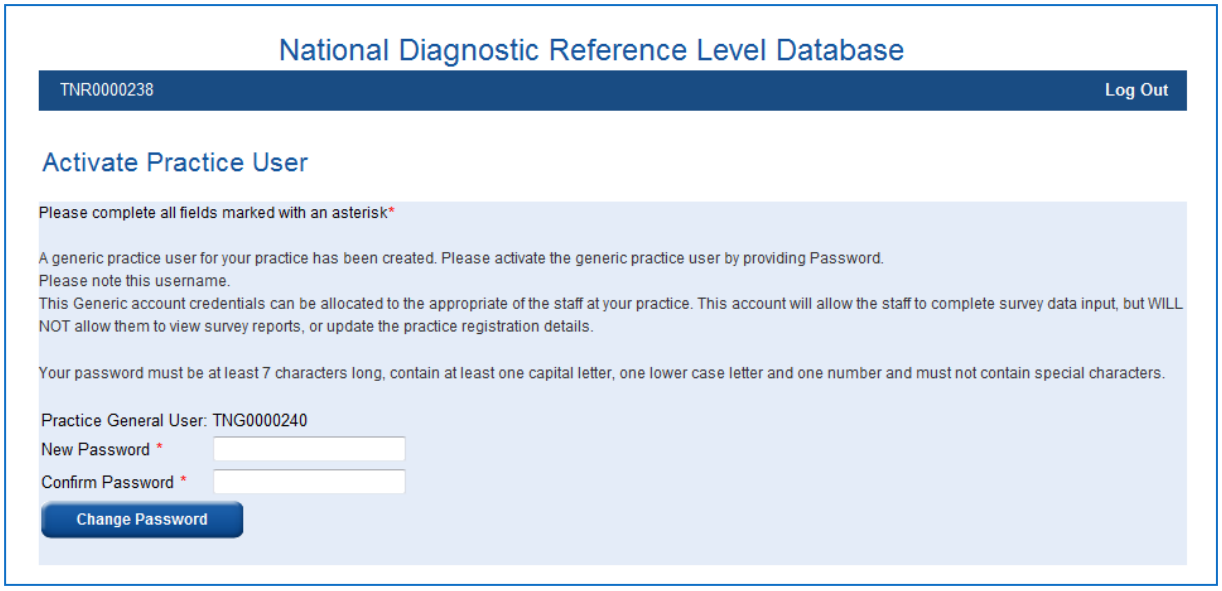


By selecting 

you will either be prompted to complete the registration process, if you have not already done this, for more details on completing the registration process see section 2.4, or you will go to your practices home page.

3.2.1 Generic Login

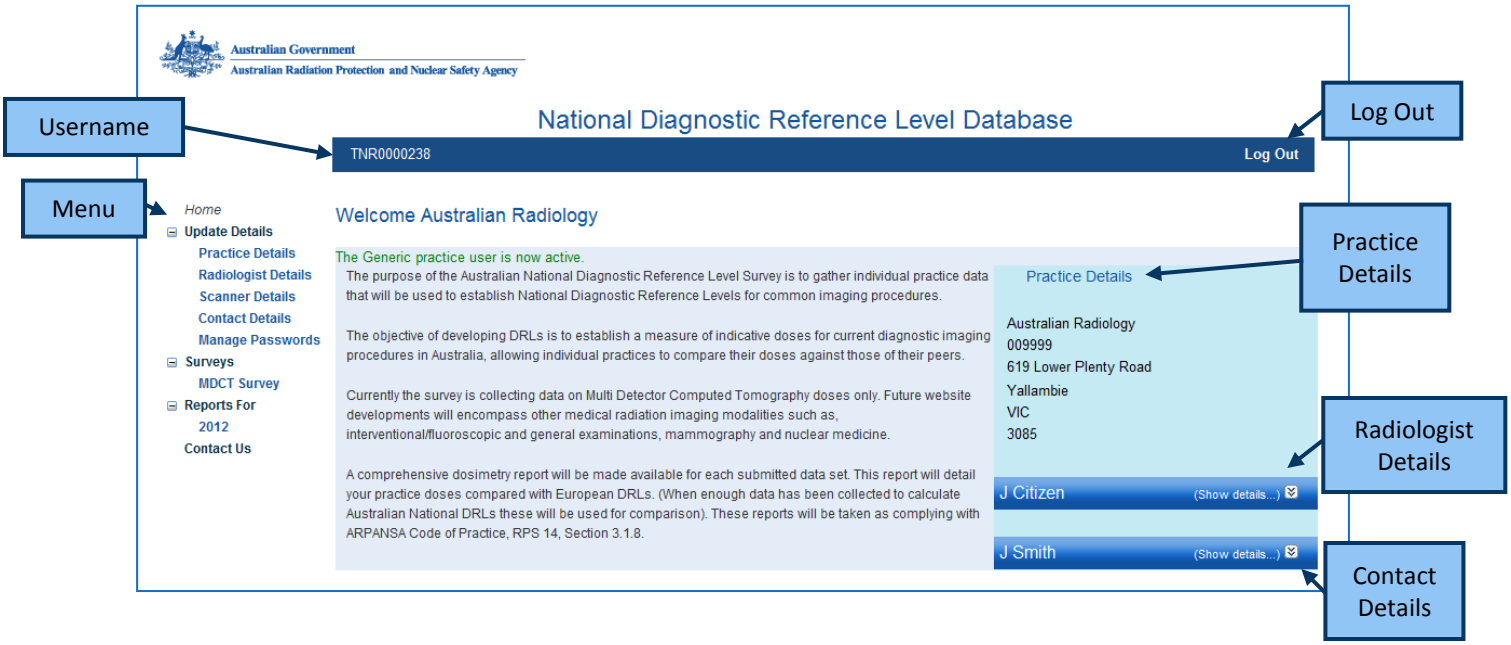
The first person, i.e. Radiologist or Contact, to login to the survey will also be asked to set a password for a generic user login. This generic login will only provide access to the survey data entry pages. They will not be able to update any details or access practice reports.


National Diagnostic Reference Level Database
TNR0000238
Log Out
Activate Practice User
Please complete all fields marked with an asterisk*
A generic practice user for your practice has been created. Please activate the generic practice user by providing Password.
Please note this username.
This Generic account credentials can be allocated to the appropriate of the staff at your practice. This account will allow the staff to complete survey data input, but WILL NOT allow them to view survey reports, or update the practice registration details.
Your password must be at least 7 characters long, contain at least one capital letter, one lower case letter and one number and must not contain special characters.
Practice General User: TNG0000240
New Password *
Confirm Password *
Change Password

Once you have filled in all fields marked with an * you should select

. You will go to the Home page for your practice and you will be notified that the Generic practice user is now active.

3.2.2 Your Practice Home page


Username
Log Out
Menu
Practice Details
Radiologist Details
Contact Details
Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
TNR0000238
Log Out
Home
Update Details
Practice Details
Radiologist Details
Scanner Details
Contact Details
Manage Passwords
Surveys
MDCT Survey
Reports For
2012
Contact Us
Welcome Australian Radiology
The Generic practice user is now active.
The purpose of the Australian National Diagnostic Reference Level Survey is to gather individual practice data that will be used to establish National Diagnostic Reference Levels for common imaging procedures.
The objective of developing DRLs is to establish a measure of indicative doses for current diagnostic imaging procedures in Australia, allowing individual practices to compare their doses against those of their peers.
Currently the survey is collecting data on Multi Detector Computed Tomography doses only. Future website developments will encompass other medical radiation imaging modalities such as, interventional/fluoroscopic and general examinations, mammography and nuclear medicine.
A comprehensive dosimetry report will be made available for each submitted data set. This report will detail your practice doses compared with European DRLs. (When enough data has been collected to calculate Australian National DRLs these will be used for comparison). These reports will be taken as complying with ARPANSA Code of Practice, RPS 14, Section 3.1.8.
Practice Details
Australian Radiology
009999
619 Lower Plenty Road
Yallambie
VIC
3085
J Citizen
(Show details...)
J Smith
(Show details...)

From the survey home page there are a number of menu options on the left hand side of the page, these are

- Home
- Update Details
- Surveys
- Reports For
- Contact Us

On the right hand side of the page are your Practice details as well as the details of the Radiologist and Contact.
In the upper left side of the screen your username is displayed and in the upper right hand side of the screen there is an option to Log Out.

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4 UPDATING DETAILS

4.1 INTRODUCTION

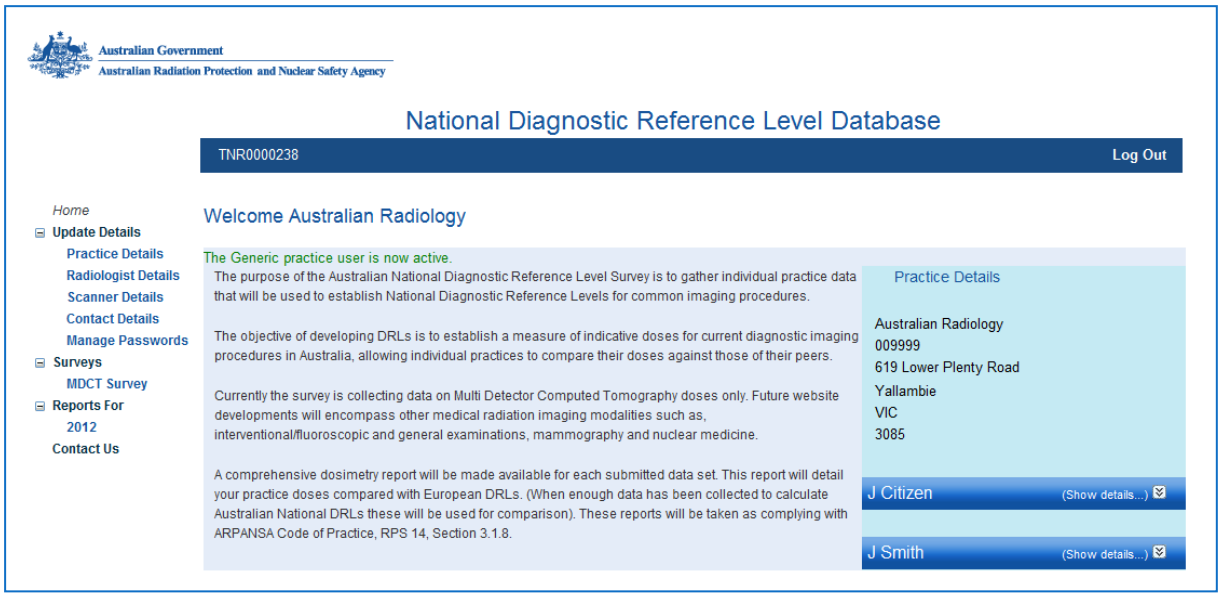
The details you submit in the initial registration process may not be applicable to your practice in the future. The 'Update Details' option allows you to update certain parts of your registration details as it becomes necessary.

4.2 UPDATING DETAILS

All of the details entered during the registration process can be updated at any time. Please note that updating the practice LSPN may require you to register as a new practice.

To update any of your details at any time simply select the details you wish to update from the menu on the left hand side of the screen. You may select to update

- Practice Details
- Radiologist Details
- Scanner Details
- Contact Details
- Manage Passwords


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
TNR0000238
Log Out
Home
Update Details
Practice Details
Radiologist Details
Scanner Details
Contact Details
Manage Passwords
Surveys
MDCT Survey
Reports For
2012
Contact Us
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The Generic practice user is now active.
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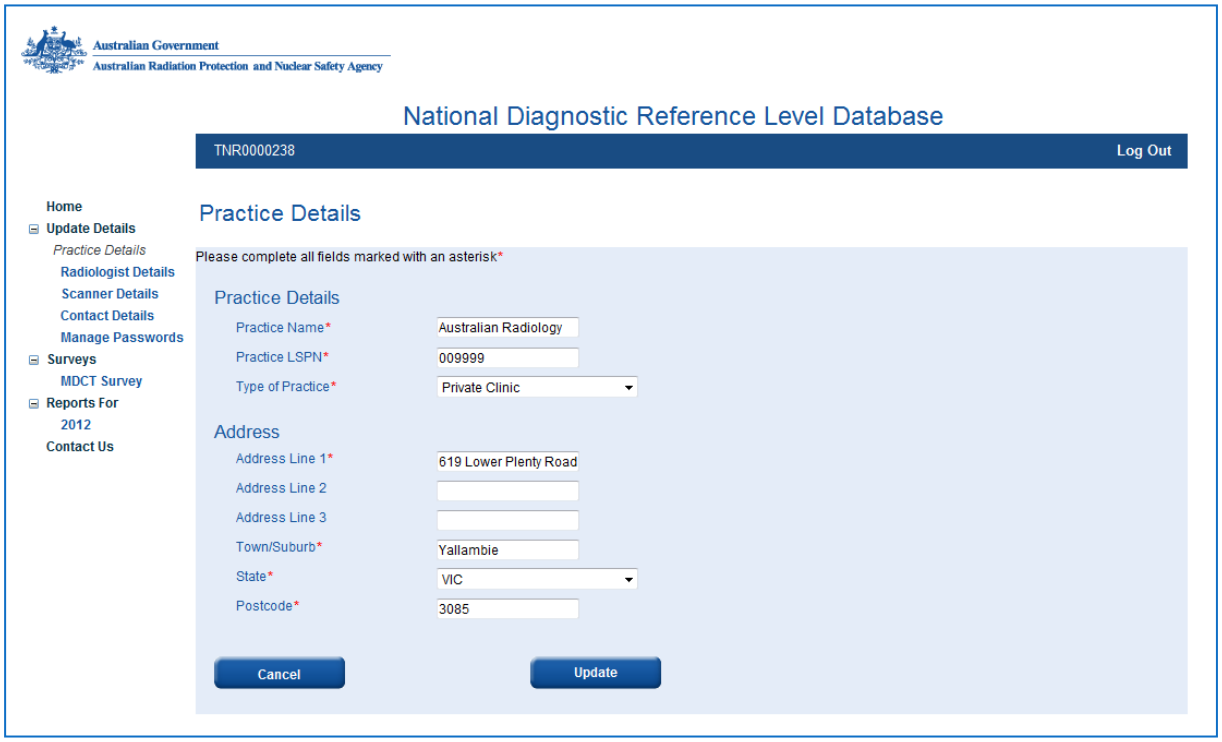
A comprehensive dosimetry report will be made available for each submitted data set. This report will detail your practice doses compared with European DRLs. (When enough data has been collected to calculate Australian National DRLs these will be used for comparison). These reports will be taken as complying with ARPANSA Code of Practice, RPS 14, Section 3.1.8.
Practice Details
Australian Radiology
009999
619 Lower Plenty Road
Yallambie
VIC
3085
J Citizen
(Show details...)
J Smith
(Show details...)

4.2.1 Update Practice Details

If you selected 'Practice Details' you will be taken to the **Practice Details** Page.



All fields on the page will be pre-filled with your current details, to change any details simply delete the details that have been pre-filled and enter your new details.

Once you are happy with the changes you should select

.

Any changes you make will need to be approved by a survey administrator before they are saved to the database. This should take no longer than five working days and you will be able to continue to access the survey in this time.

Please note changing your practice address or LSPN may require you to register as a new practice.

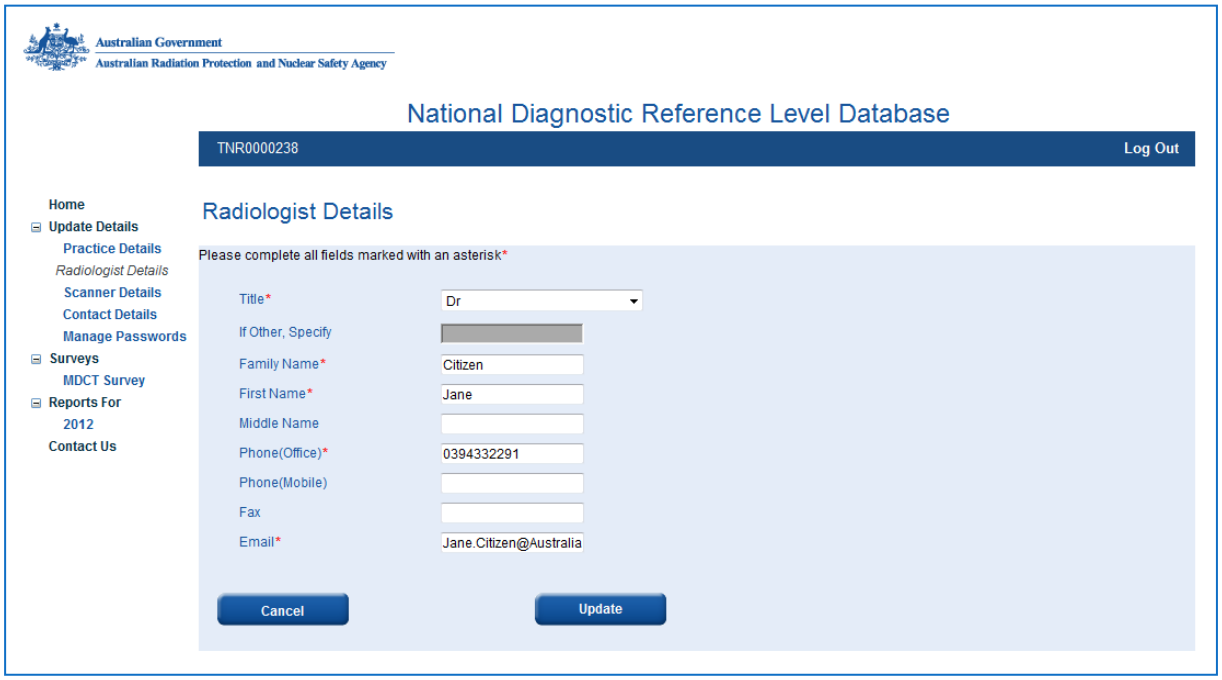
If you select

you will be asked if you wish to discard any changes you have made and you will return to the survey home page.

4.2.2 Update Radiologist Details

If you selected 'Radiologist Details' you will be taken to the **Radiologist Details** Page.

- If you used the Radiologist login you will see the following screen.



All fields on the page will be pre-filled with your current details, to change any details simply delete the details that have been pre-filled and enter your new details.

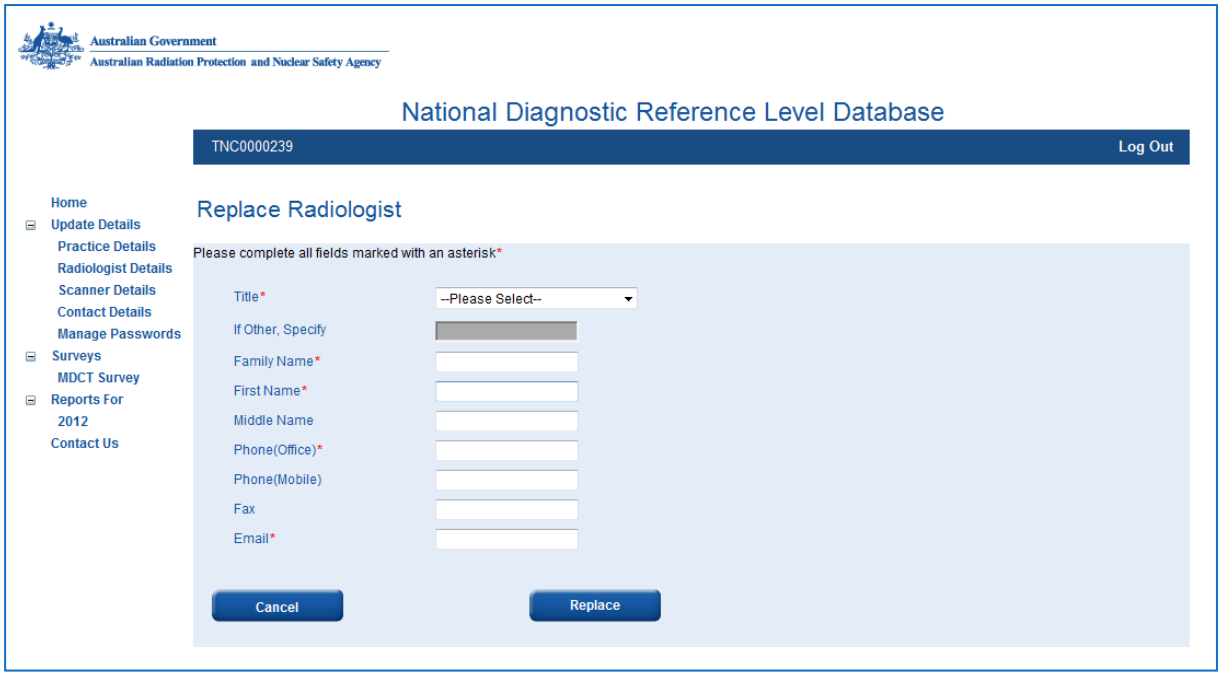
Once you are happy with the changes you should select

, and you will be notified that the '*Request to update radiologist details has been submitted and is pending approval*'. The updates made will be checked by a survey administrator and if they are not approved you will be notified by email. This should take no longer than five working days and you will be able to continue to access the survey in this time.

- If you used the Contact login you will see the following screen.

To make a change to any field you must first select

, which will take you to the Replace Radiologist page where you can enter all new details for your Radiologist.



Once you have filled in all fields marked with an * you should select

, and you will be notified that '*A request to replace this radiologist has been submitted and is pending approval*'. Once this has been approved by a survey administrator it will be saved to the database. This should take no longer than five working days and you will be able to continue to access the survey in this time.

Please note that replacing the Radiologist will render the username and password for the previous Radiologist invalid. A new username and temporary password will be emailed to the new Radiologist in Charge within five working days.

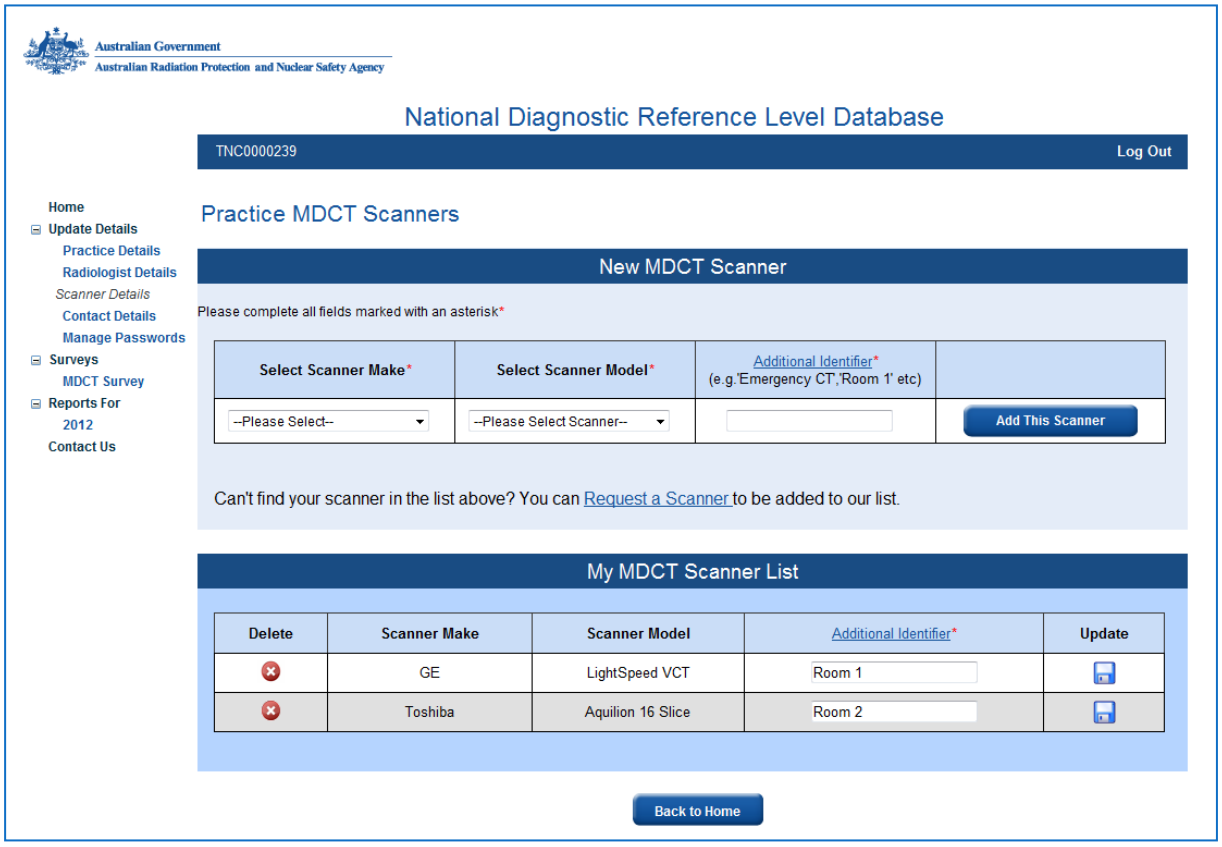
If you are only changing the title, phone, fax or email of the Radiologist the username and password for the Radiologist will remain valid.

If you select

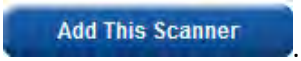
you will be asked if you wish to discard any changes you have made and you will return to the survey home page.

4.2.3 Update Scanner Details

If you selected 'Scanner Details' you will be taken to the **Scanner Details** Page.



The CT scanners you have already listed will appear under the title 'My MDCT Scanner List'.

If you wish to add a new scanner you should select the make and model of the scanner from the drop down lists, fill in the Additional Identifier field then select 

.
For more information on Additional Identifiers see section 2.3.3.

To delete a CT Scanner from this list you select the next to the CT Scanner you wish to delete. To alter the 'Additional Identifier' for a CT Scanner you should alter the text in the field then select to save your changes.

> ***If your CT Scanner is not listed***
> The CT Scanner Models are listed as defined by the manufacturer. If a CT scanner at your practice is not in the drop down lists you can select '--Can't find my Scanner Make--'/'--Can't find my Scanner Model--' from either the 'Make' or 'Model' drop down list or
>
> , see section 2.5 for more details.

Once you have made all the desired changes you should select

.

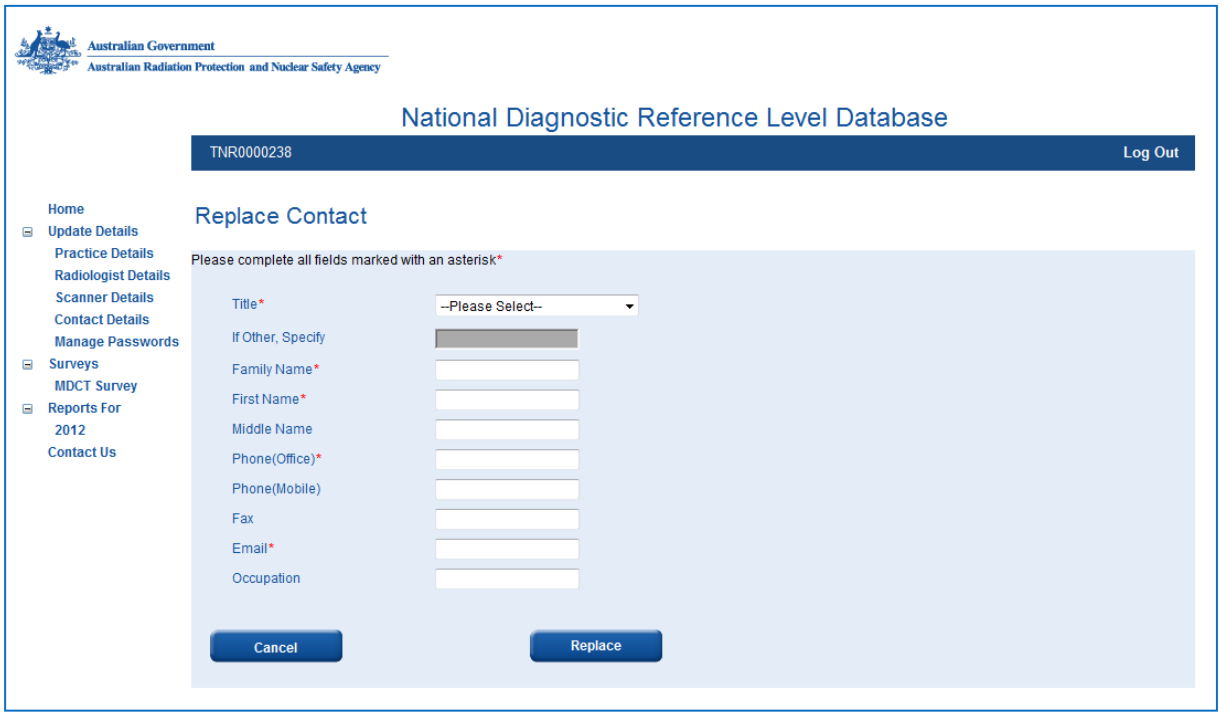
4.2.4 Update Contact Person Details

If you selected 'Contact Person Details' you will be taken to the **Contact Details** Page.

- If you used the Radiologist login you will see the following screen.

To make a change to any field you must first select

, which will take you to the Replace Contact page where you can enter all new details for your Contact Person.



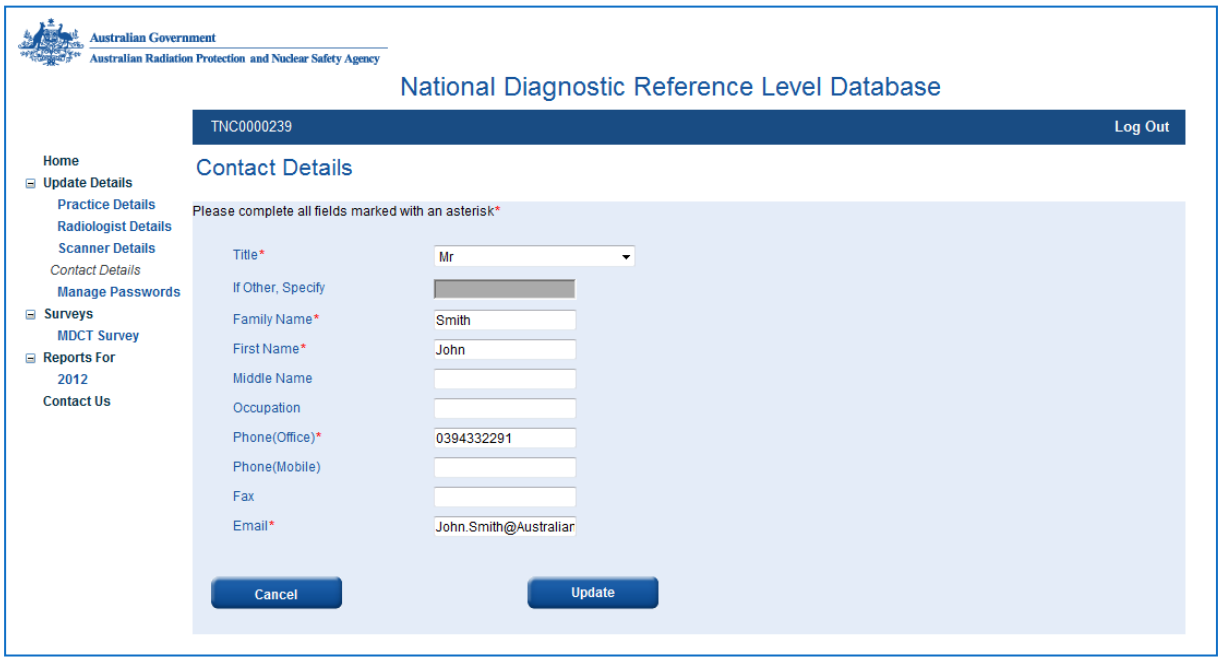
Once you have filled in all fields marked with an * you should select Replace, and you will be notified that '*A request to replace this contact has been submitted and is pending approval*'. Once this has been approved by a survey administrator it will be saved to the database. This should take no longer than five working days and you will be able to continue to access the survey in this time.

Please note that replacing the Contact Person will render the username and password for the previous Contact Person invalid. A new username and temporary password will be emailed to the new Contact Person within five working days.

If you are only changing the title, phone, fax or email of the Contact Person the username and password for the Contact Person will remain valid.

If you select Cancel you will be asked if you wish to discard any changes you have made and you will return to the survey home page.

- If you used the Contact login you will see the following screen.



All fields on the page will be pre-filled with your current details. To change any details simply delete the details that have been pre-filled and enter your new details.

Once you are happy with the changes you should select Update, and you will be notified that *'A request to update contact details has been submitted and is pending approval'*.

4.2.5 Manage Password

You are able to change your password at any time. Both the Radiologist and the Contact can update their own password and the generic user password.

Please note that when logging in using the generic username you are not able to update any details including the passwords.

If you selected 'Manage Passwords' you will be taken to the **Manage Passwords** page.

To change your own login password you should select

.

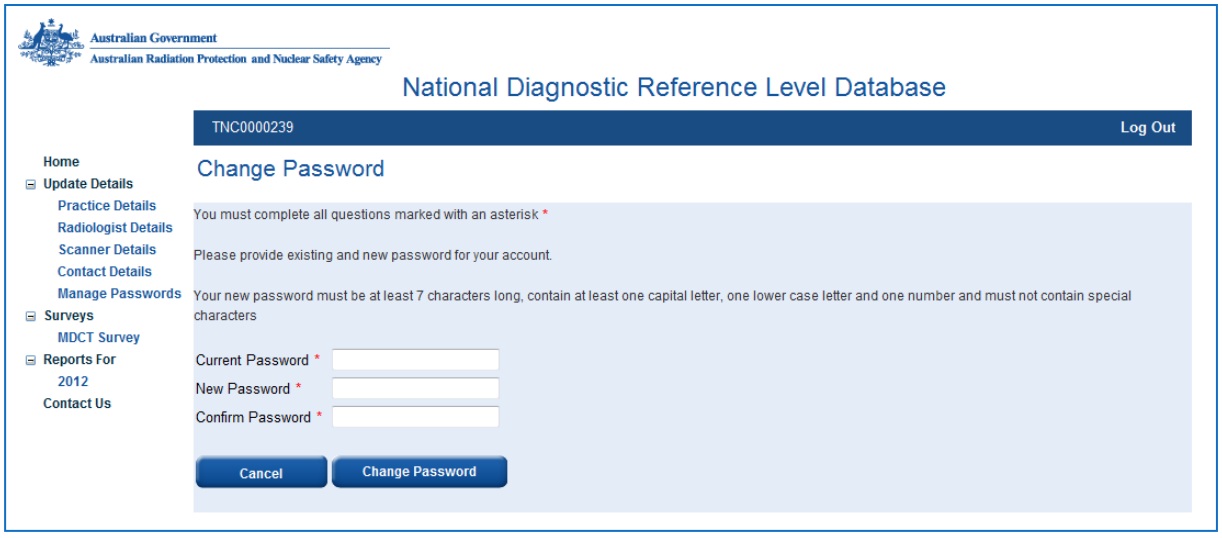
To change the Generic Users password you should select

.

4.2.6 Changing the Radiologist or Contact Person password

If you select

you will be taken to the following page.



When changing your password you must choose a new password that

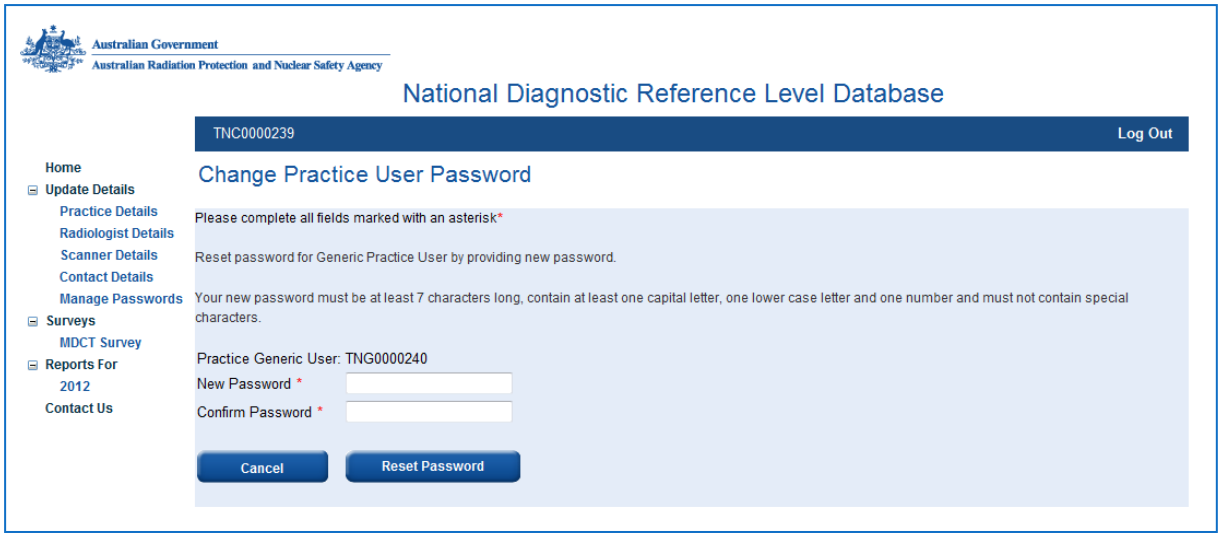
- is at least seven characters long
- contains at least one capital letter
- contains at least one number

Please note that your new password cannot be identical to any of the last 8 passwords you have used and this is case sensitive.

Once you have filled in all fields marked with an * you should select Change Password, and you will be notified that the *'Password for your account is updated successfully'*.

4.2.7 Changing the generic user password

If you select Generic Account you will be taken to the following page.



When changing the generic user password you must choose a new password that

- is at least seven characters long
- contains at least one capital letter
- contains at least one number

Please note that the new password cannot be identical to any of the last 8 passwords you have used and this is case sensitive.

Note that for the generic user account the username will be displayed and you do not have to enter the current password.

Once you have filled in all fields marked with an * you should select

, and you will be notified that *'The Generic practice user password is reset successfully'*.

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5 COMPLETING A SURVEY

5.1 WHY ARE WE PARTICIPATING IN THE SURVEY?

Each set of survey data that is submitted will be used to create a national data set from which Australian National DRLs will be calculated and updated. Also for each set of survey data you submit a comprehensive dosimetry report will be available detailing the specific protocol doses and a comparison with the national DRLs. This report can be taken as an indication of compliance with the ARPANSA Code of Practice – Radiation Protection in the Medical Applications of Ionising Radiation, RPS 14, Section 3.1.8(a).

5.2 SURVEY CATEGORIES

Each new survey you begin must be specified by the age group, protocol and CT scanner used. The three age groups are

- Baby/Infants (0-4 years)
- Children (5-14 years)
- Adults (15+ years)

The six protocols are

- Head
- Neck*
- Chest
- AbdoPelvis
- ChestAbdoPelvis*
- Lumbar Spine*

**Indicates a protocol available only for the Adult age group*

For more information on the scan range and indications for each protocol see Appendix A.

The CT scanner used will be a choice of the CT scanners you listed during the registration process.

5.3 INFORMATION COLLECTED IN A SURVEY

For each survey you must enter information on the technical scan settings used and data on 20 patients. The data on the 20 patients is entirely anonymous, no personal patient information data is required.

The scan settings data required is

- kVp (set kVp)
- mAs (starting or reference mAs)
- pitch (set pitch)
- if contrast media was used (YES/NO)
- if dose modulation was used (YES/NO)
- rotation time (in sec)
- the number of phases (1/2/3/4)
- how the image was acquired (Helically/Axially)
- detector configuration (number of detectors and detector slice width in mm)
- if iterative reconstruction was used (YES/NO)
- reconstruction slice width (in mm)
- reconstruction algorithm/kernel (will be manufacturer dependent)
- scan field of view (in cm) – *not mandatory*
- beam shaping filter (will be manufacturer dependent) – *not mandatory*
- noise index (numerical) – *not mandatory*

With the exception of the scan field of view, beam shaping filter and noise index all scan settings data is mandatory and must be filled in before you may enter any patient data.
More specific information on what is required for each of these fields is given in Appendix B.

There is also a comments box below the scan settings in which you can record any other information about the protocol, and/or something relevant to you at the practice to help you differentiate between surveys.

The patient data required is

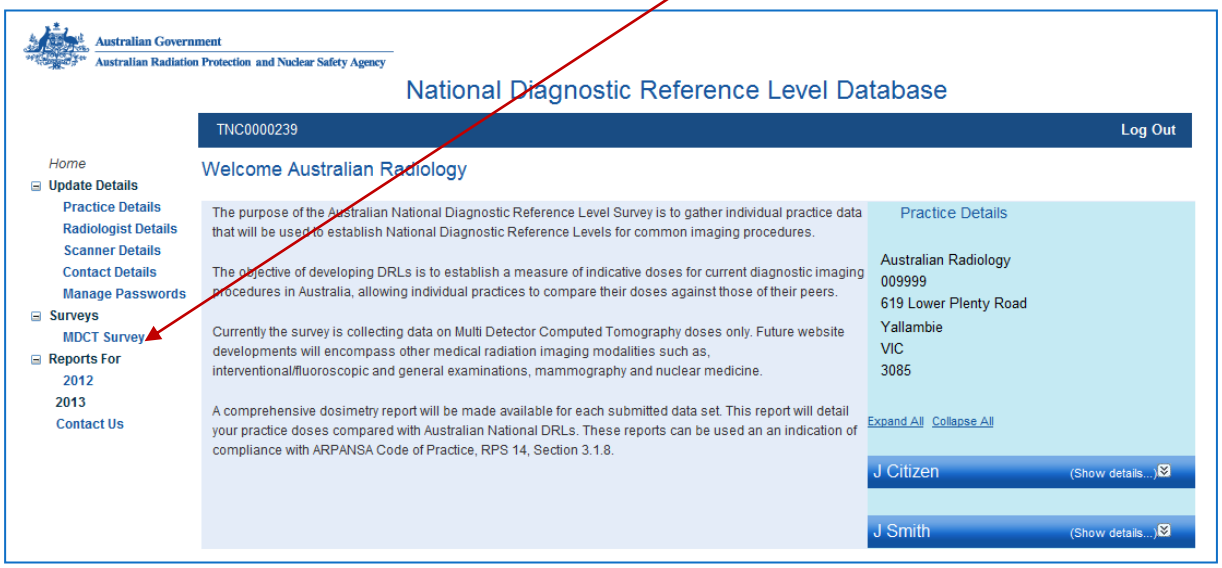
- The ***total*** Dose Length Product (DLP) in mGy.cm
- The ***average*** Computed Tomography Dose Index volume ($CTDI_{vol}$) in mGy
- The patient weight in kg - (*it may be useful to have set of scales handy*)
- The patient age in years (in months for the Baby/Infant age group)
- The patient gender (Male or Female)

More specific information on what is required for each of these fields is given in Appendix C.

This is required for 20 patients to complete the survey. You may submit a survey with data from between 10 and 19 patient data sets but the statistical confidence of the PRLs calculated will be limited.

5.4 NAVIGATING TO THE SURVEY PAGE

From the survey home page, the list of modalities available in which to complete a survey is listed under the Surveys menu on the left hand side of the screen.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
TNC0000239
Log Out
Home
Update Details
Practice Details
Radiologist Details
Scanner Details
Contact Details
Manage Passwords
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2012
2013
Contact Us
Welcome Australian Radiology
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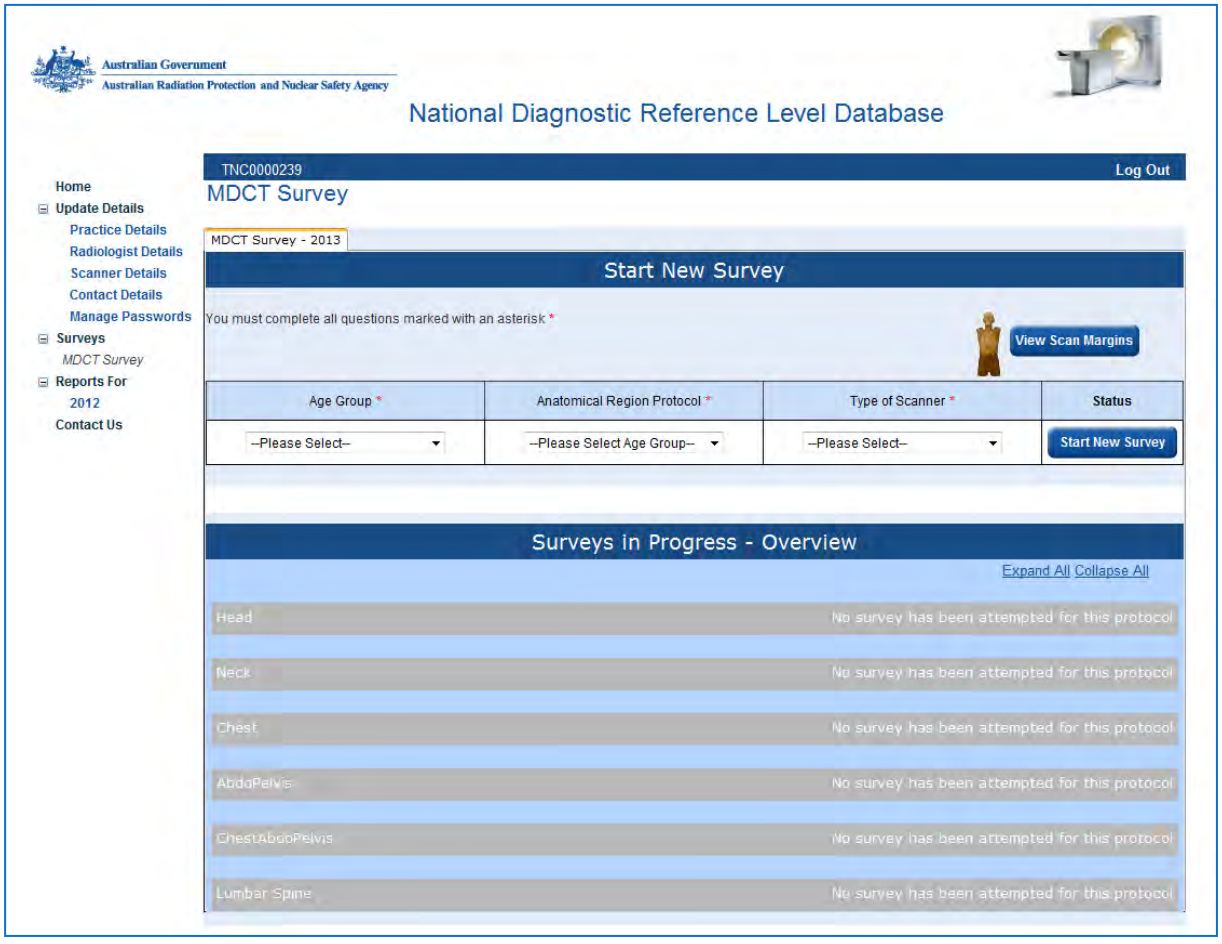
Practice Details
Australian Radiology
009999
619 Lower Plenty Road
Yallambie
VIC
3085
Expand All Collapse All
J Citizen (Show details...)
J Smith (Show details...)

Currently the only survey open is the Multiple Detector Computed Tomography (MDCT) Survey.

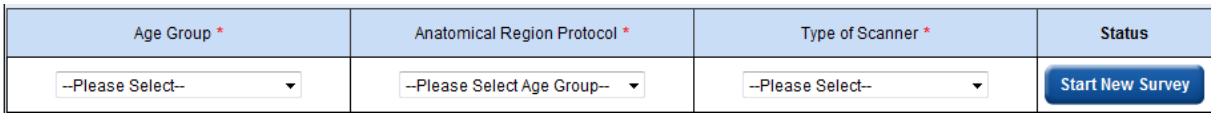
By selecting MDCT Survey you will be taken to the **MDCT Survey** page.



This page is split into two parts 'Start New Survey' and 'Surveys in Progress - Overview'. There is also an option to view the scan margins.
From this page you have the option to start a new survey or continue a survey you have started previously.

5.5 STARTING A NEW SURVEY

To start a new survey you need to select the protocol, CT scanner and age group of the survey you wish to begin from the drop down lists under 'Start New Survey' at the top of the page.



There are three Age Groups

- Baby/Infant (0-4 years of age)
- Child (5-14 years of age)
- Adult (15+ years of age)

There is a set list of protocols, these are

- Head
- Neck*
- Chest
- AbdoPelvis
- ChestAbdoPelvis*
- Lumbar Spine*

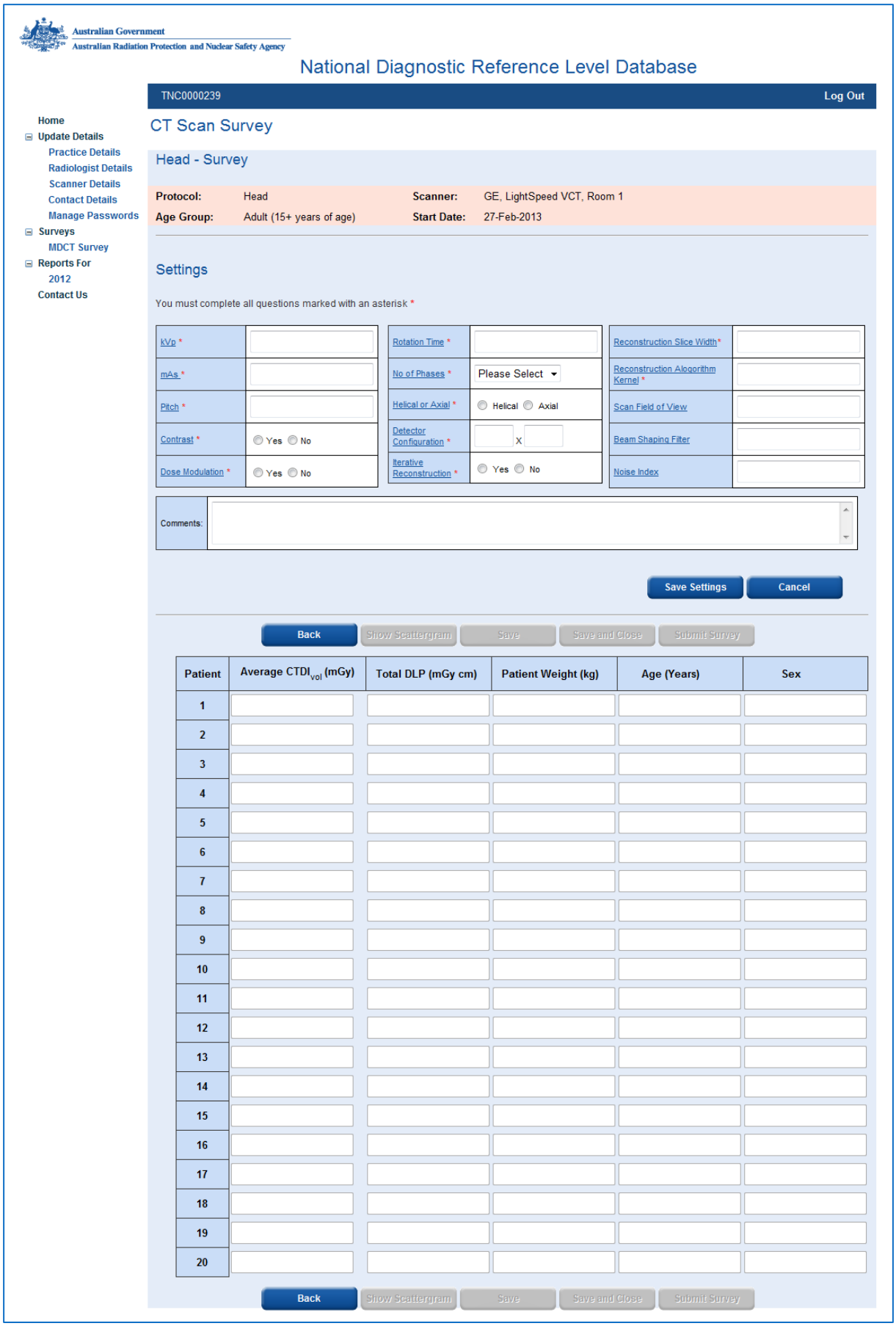
**Indicates a protocol available only if you have selected the Adult age group*

The type of scanner drop down list will be made up only of the scanner/s you listed in the registration process.

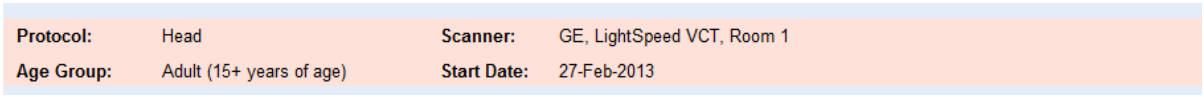
Once you have selected the Age Group, Protocol and Scanner you should select

.

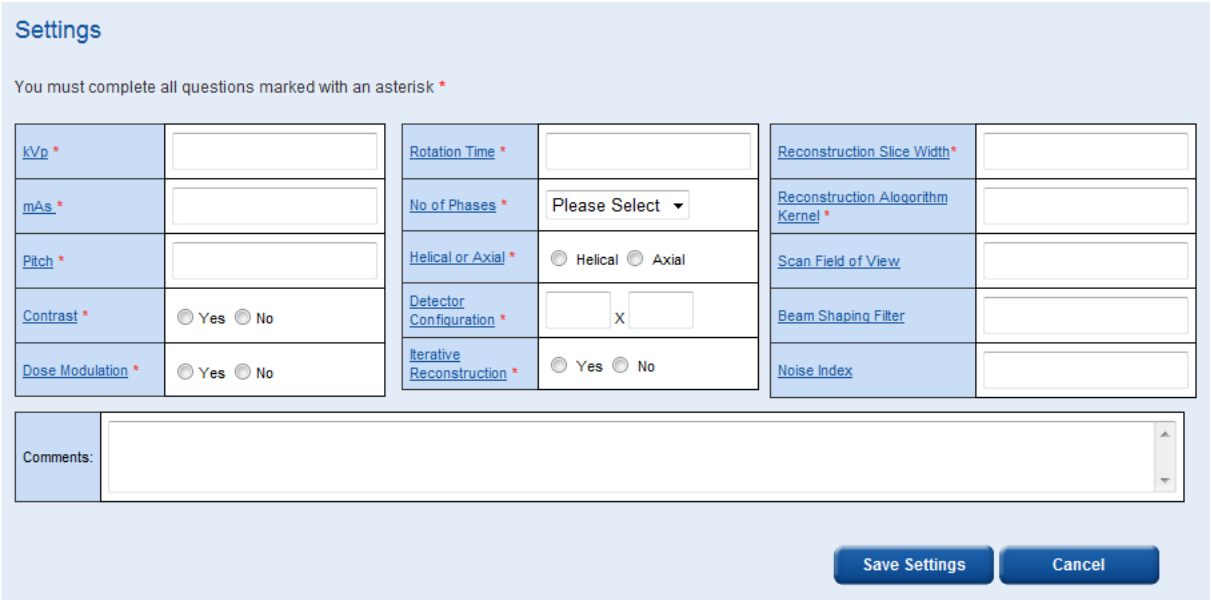
This will take you to the data entry page for the survey you have just created.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
TNC0000239
Log Out
Home
Update Details
Practice Details
Radiologist Details
Scanner Details
Contact Details
Manage Passwords
Surveys
MDCT Survey
Reports For
2012
Contact Us
CT Scan Survey
Head - Survey
Protocol: Head
Scanner: GE, LightSpeed VCT, Room 1
Age Group: Adult (15+ years of age)
Start Date: 27-Feb-2013
Settings
You must complete all questions marked with an asterisk *
kVp *
mAs *
Pitch *
Contrast * Yes No
Dose Modulation * Yes No
Rotation Time *
No of Phases * Please Select
Helical or Axial * Helical Axial
Detector Configuration * X
Iterative Reconstruction * Yes No
Reconstruction Slice Width*
Reconstruction Algorithm Kernel *
Scan Field of View
Beam Shaping Filter
Noise Index
Comments:
Save Settings
Cancel
Back
Show Scattergram
Save
Save and Close
Submit Survey
Patient
Average CTDIvol (mGy)
Total DLP (mGy cm)
Patient Weight (kg)
Age (Years)
Sex
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Back
Show Scattergram
Save
Save and Close
Submit Survey

At the top of the page the Protocol, CT Scanner Make, Model and Additional Identifier, Age Group and Start Date of the survey are listed.



Below this are a series of fields relating to the technical settings used to acquire the images. In this section we request the settings used for the general protocol. The 20 sets of patient data from this survey do not have to match all of the settings exactly but they should be close.



All mandatory fields in this section must be filled out before any patient data can be added to the table below.

For guidance on the information required for each field please see Appendix B. The field titles for each setting parameter are also hyperlinked to a help page.

There is also a comments box below the scan settings in which you can record any other information about the protocol, to better define the specific protocol (e.g. what mAs value was recorded, was it starting, reference, minimum etc? if it was a survey of paediatric patients was the 16 or 32 cm reference phantom used for DLP and $CTDI_{vol}$ values?) and/or something relevant to you at the practice to help you differentiate between surveys.

When you have filled in all fields marked with an * you should select

. You will be informed that *'Proceeding will lock scanner settings, Are you sure you wish to continue?'*. By selecting OK the data in the scan settings table will become locked and you will not have another chance to edit it. At this point the patient data entry table will become unlocked.

By selecting

you will return to the survey home page and none of the data you entered will be saved.

You can now enter data into the patient data entry table.

Also, at the top right of the page there is an option to

, this will produce a black and white copy of the data entry page which will print to a single A4 page. We recommend recording your patient data on this printed page then entering the full 20 patient data sets electronically in one go.

Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
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Radiologist Details
Scanner Details
Contact Details
Manage Passwords
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MDCT Survey
Reports For
2012
Contact Us
CT Scan Survey
Head - Survey
Print
Protocol: Head
Scanner: GE, LightSpeed VCT, Room 1
Age Group: Adult (15+ years of age)
Start Date: 27-Feb-2013, 12:35 PM
Settings
You must complete all questions marked with an asterisk *
kVp * 140
mAs * 170.00
Pitch * 1.000
Contrast * Yes No
Dose Modulation * Yes No
Rotation Time * 2.00
No of Phases * 1
Helical or Axial * Helical Axial
Detector Configuration * 64 X 0.125
Iterative Reconstruction * Yes No
Reconstruction Slice Width * 5
Reconstruction Algorithm Kernel * Standard
Scan Field of View 25
Beam Shaping Filter Bow Tie
Noise Index 3
Comments: Standard head protocol, 16 cm reference phantom
Save Settings
Cancel
Back
Show Scattergram
Save
Save and Close
Submit Survey
Patient
Average CTDIvol (mGy)
Total DLP (mGy cm)
Patient Weight (kg)
Age (Years)
Sex
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
--Select--
Back
Show Scattergram
Save
Save and Close
Submit Survey

In the patient data entry table you should enter the ***average*** $CTDI_{vol}$, ***total*** DLP, patient weight, patient age and sex information you have collected.

There are a number of options you can select once you have entered your data. These are 'Back', 'Show Scattergram', 'Save', 'Save and Close' and 'Submit Survey'.

5.5.1 Save

To save your data at any time you can select

.

Please note that selecting

will lock any data you have entered in the table.

Please note also that all five fields in the table must be filled in for each patient. If all five fields are not filled in and you select

, only the data up to the point where the last complete set of five fields is filled in will be saved.

Please note that if you have filled in all 20 data sets and you select

this will also automatically submit the survey.

5.5.2 Save and Close

If you select

the data in the patient data table will be saved and you will return to the survey home page. This will also cause the data you have entered to be locked.
You may return to this survey and add more data at any time.

Please note that if you have filled in all 20 data sets and you select

this will also automatically submit the survey.

5.5.3 Show Scattergram

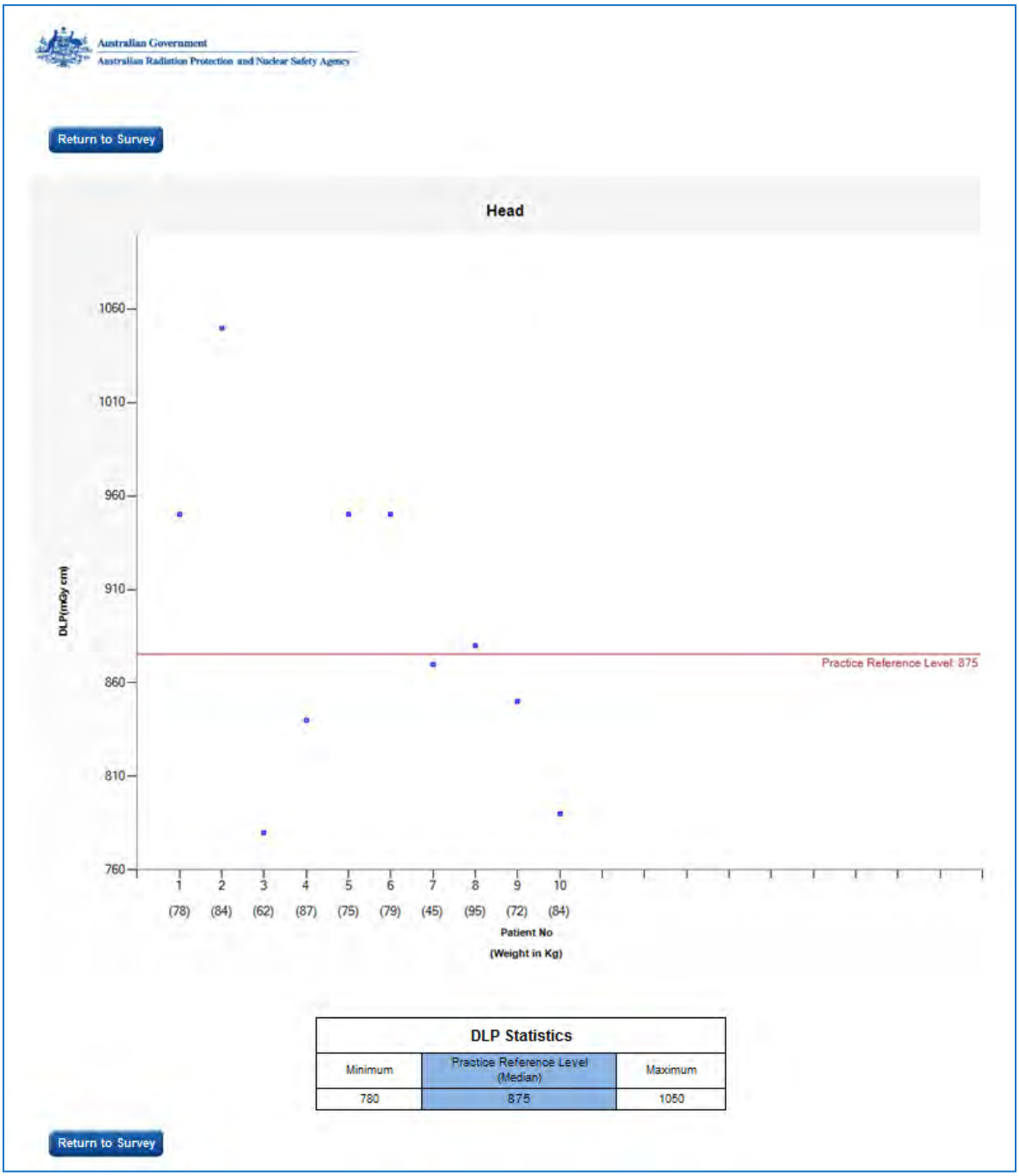
The show scattergram button will only become active when you have entered data for at least 1 patient and saved the data.

By selecting

, a scattergram of the DLP data vs patient number you have entered will be displayed. This will also cause the data you have entered to be locked.

Please note that if you have filled in all 20 data sets and you select

this will also automatically submit the survey.



This is intended to give you a graphical representation of the spread of the DLPs for the patients you have entered. You will also notice that the patient weight is displayed on the x-axis below each patient number in parenthesis.

Also, below the scattergram some brief statistics of your DLPs will be displayed. These include the minimum DLP, maximum DLP and median DLP.

To return to the Data Entry page for this survey you should select Return to Survey .

5.5.4 Submit Survey

The Submit Survey button will only become active when you have entered and saved data for at least 10 patients.

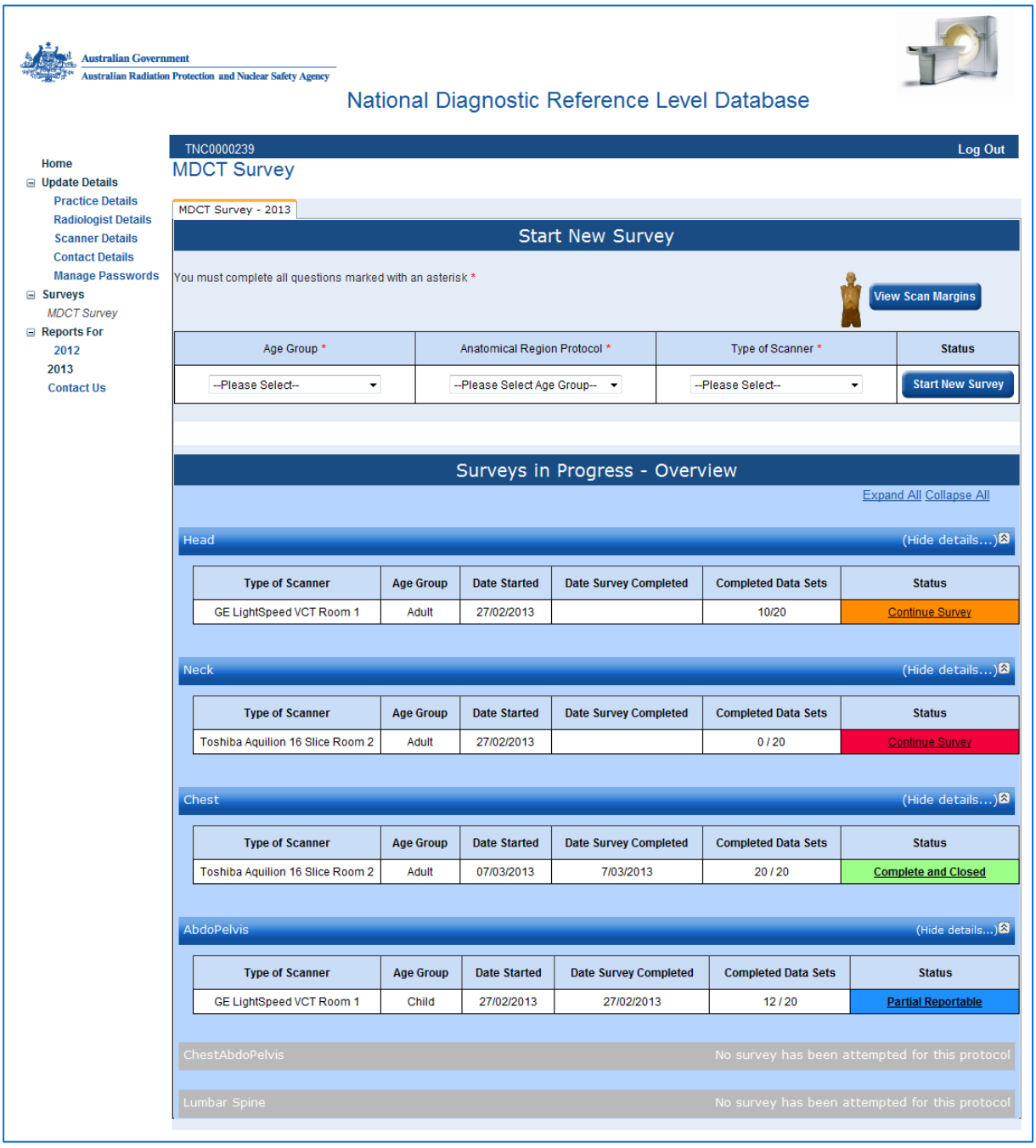
You should only select

if you have entered data for a full 20 patients. You may submit the survey with data from between 10 and 19 patients entered but the statistical significance of the PRLs generated will be limited.

Once a survey has been submitted all the data will become locked. You will be able to view the data entry page but you will not be able to make any changes including entering additional data. If you submit a survey set with less than 20 data sets you will not be able to add more patient data at a later date. Once a survey is submitted you will only be able to view the data.

5.6 CONTINUING A SURVEY

On the bottom half of the CT Survey home page is a list of Surveys in Progress, once expanded, this list will show you all the surveys you have started in the current calendar year.

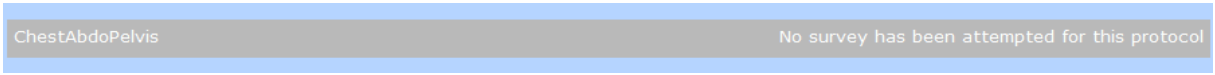


The list includes the 'Type of Scanner' including the 'Additional Identifier', the 'Age Group', the 'Date Started', the 'Date Survey Completed', the number of 'Completed Data Sets' and 'Status' of the survey.

There are several Survey 'Status's', these include

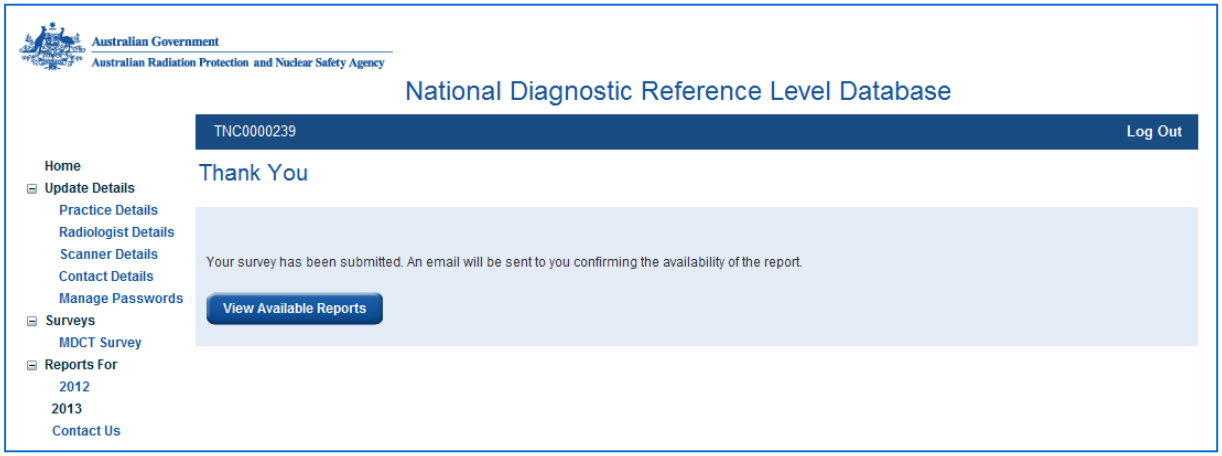
Continue Survey	Indicates that the survey has been started but less than 10 patient data sets have been completed. This survey can be continued at any time.
Continue Survey	Indicates that the survey has been started and between 10 and 19 data patient data sets have been completed. This survey can be continued at any time.
Partial Reportable	Indicates that the survey has been submitted but with between 10 and 19 patient data sets completed. The data entry page for this survey can be viewed at any time but this survey cannot be continued.
Complete and Closed	Indicates that the survey has been submitted with all 20 patient data sets completed. The data entry page for this survey can be viewed at any time and this survey cannot be continued.

If no survey has been started for a protocol the following message will be shown along with the protocol name



5.7 WHAT HAPPENS WHEN YOU SUBMIT A SURVEY?

When you submit a survey you will be taken to the **Thank You** page.



From here you can select

, this will take you to the **Survey Reports** page for the current year.

Also, every time a survey is submitted an email will automatically be sent to the Radiologist and Contact informing them that a *'Survey report is now available'*.

Please note that if you have filled in all 20 patient data sets and you select 'Show Scattergram', the survey will be submitted automatically and emails will be sent to the Radiologist and Contact but you will not navigate to the 'Thank You' page. To obtain the report for this survey you will have to navigate to the **Reports Page** by selecting the relevant year from the menu on the left under the 'Reports For' title.

Table of Contents

6 PRACTICE REPORTS

6.1 WHAT ARE THE PRACTICE REPORTS?

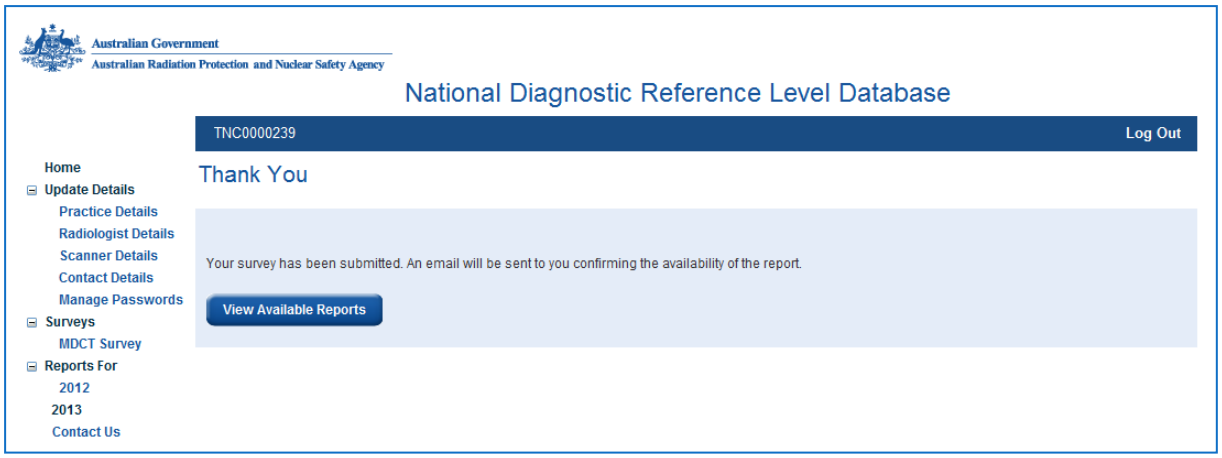
For each survey submitted ARPANSA will provide a comprehensive dosimetry report. This report will detail the following for the submitted data set

- the spread of DLPs and $CTDI_{vol}$'s
- provide a Practice Reference Level (PRL) in terms of DLP and $CTDI_{vol}$
- make a comparison between the PRLs and the national DRLs for that protocol

6.2 HOW TO ACCESS PRACTICE REPORTS

Only the Radiologist and Contact can access the practice reports, the Generic user cannot.

On submission of a survey you will be taken to the **Thank You** page.

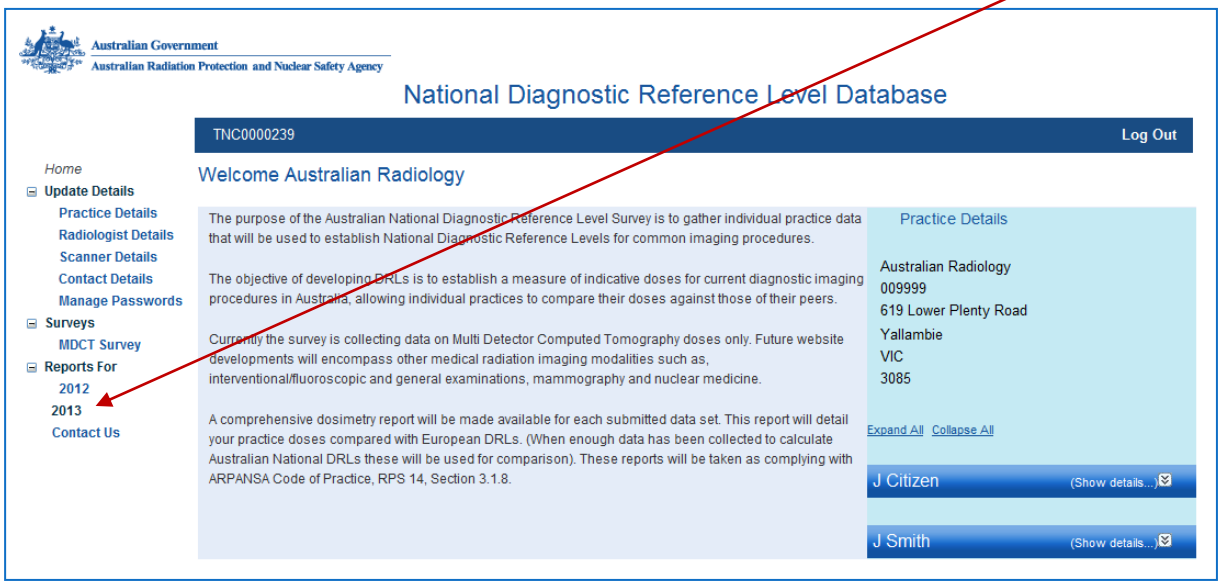


From here you can select

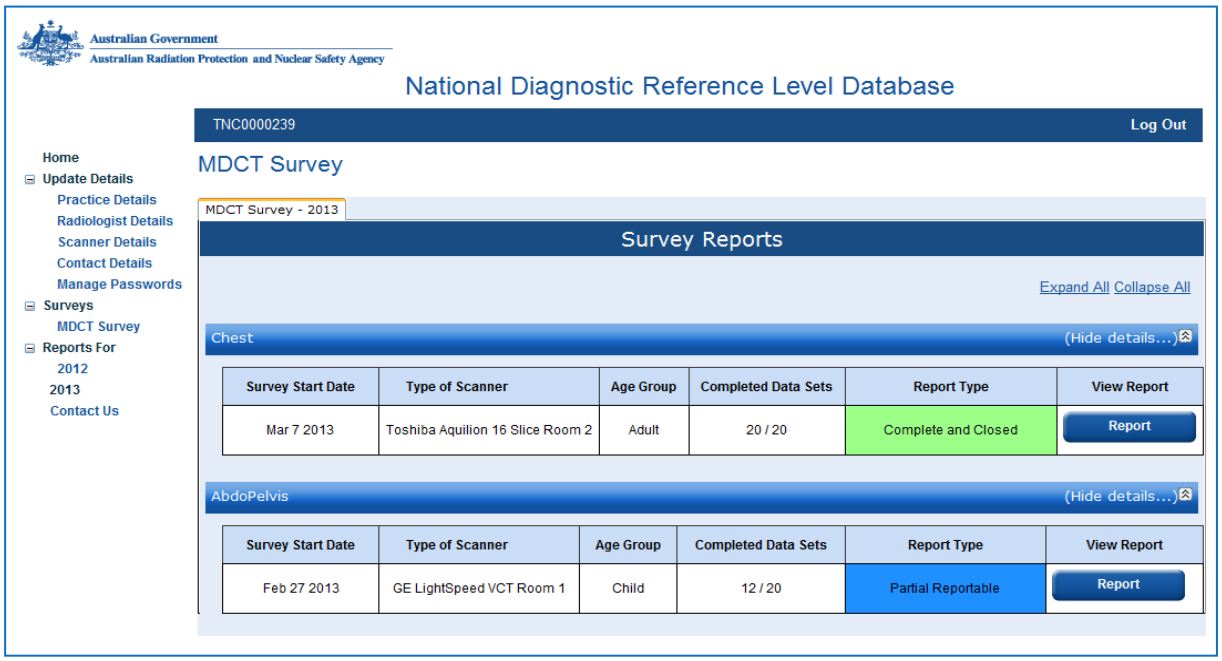
, this will take you to the **Survey Reports** page for the current year.

Also, every time a survey is submitted an email will automatically be sent to the Radiologist and Contact informing them that a *'Survey report is now available'*.

Available practice reports can also be accessed anytime via the 'Reports For' item on the menu. Practice reports for surveys submitted in the year 2013 can be accessed by selecting **2013** .


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
TNC0000239
Log Out
Home
Update Details
Practice Details
Radiologist Details
Scanner Details
Contact Details
Manage Passwords
Surveys
MDCT Survey
Reports For
2012
2013
Contact Us
Welcome Australian Radiology
The purpose of the Australian National Diagnostic Reference Level Survey is to gather individual practice data that will be used to establish National Diagnostic Reference Levels for common imaging procedures.
The objective of developing DRLs is to establish a measure of indicative doses for current diagnostic imaging procedures in Australia, allowing individual practices to compare their doses against those of their peers.
Currently the survey is collecting data on Multi Detector Computed Tomography doses only. Future website developments will encompass other medical radiation imaging modalities such as, interventional/fluoroscopic and general examinations, mammography and nuclear medicine.
A comprehensive dosimetry report will be made available for each submitted data set. This report will detail your practice doses compared with European DRLs. (When enough data has been collected to calculate Australian National DRLs these will be used for comparison). These reports will be taken as complying with ARPANSA Code of Practice, RPS 14, Section 3.1.8.
Practice Details
Australian Radiology
009999
619 Lower Plenty Road
Yallambie
VIC
3085
Expand All Collapse All
J Citizen (Show details...)
J Smith (Show details...)

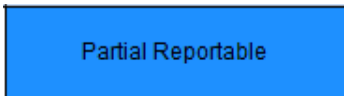
This will take you to the **Survey Reports** page for 2013.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
TNC0000239
Log Out
Home
Update Details
Practice Details
Radiologist Details
Scanner Details
Contact Details
Manage Passwords
Surveys
MDCT Survey
Reports For
2012
2013
Contact Us
MDCT Survey
MDCT Survey - 2013
Survey Reports
Expand All Collapse All
Chest (Hide details...)
Survey Start Date | Type of Scanner | Age Group | Completed Data Sets | Report Type | View Report
Mar 7 2013 | Toshiba Aquilion 16 Slice Room 2 | Adult | 20 / 20 | Complete and Closed | Report
AbdoPelvis (Hide details...)
Survey Start Date | Type of Scanner | Age Group | Completed Data Sets | Report Type | View Report
Feb 27 2013 | GE LightSpeed VCT Room 1 | Child | 12 / 20 | Partial Reportable | Report

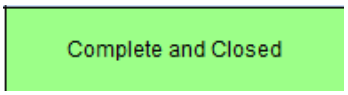
On this page you will see a list of each survey you have submitted under the protocol name for that survey. Protocol names for which you have not submitted any surveys will not be shown.

This list includes the 'Survey Start Date', 'Type of Scanner' including the 'Additional Identifier', the 'Age Group', the number of 'Completed Data Sets' and the 'Report Type'.

There are two ‘Report Types’, these are



Indicates that the survey has been submitted with between 10 and 19 patient data sets. The report for this survey is available but the statistical significance of the PRLs are limited.



Indicates that the survey has been submitted with a full 20 patient data sets.

To view a report you should select the appropriate

button. Each report is in the form of a PDF which you can open and/or save to your computer. You can download the same report multiple times.

6.3 A GUIDE TO YOUR PRACTICE REPORT

The Australian National Diagnostic Reference Level MDCT Survey report enables each practice to document and record Practice Reference Levels for individual scanners, protocols and age groups.

The Practice Reference Levels (PRLs), can then be compared against established Diagnostic Reference Levels (DRLs), enabling a practice to compare their dose efficiency performance in relation to their peers.

The practice report comprises four pages, provided in an easy to understand format.

The purpose of the report is to provide you with a record of the range of doses submitted for the specific acquisition protocol you used for that group of patients. The principle units of dose are the Dose Length Product (DLP, mGy.cm) and the Computed Tomography Dose Index volume ($CTDI_{vol}$, mGy).

6.3.1 A Guide to Page 1

This page displays the following information

At the top of the page there is a summary of the following details

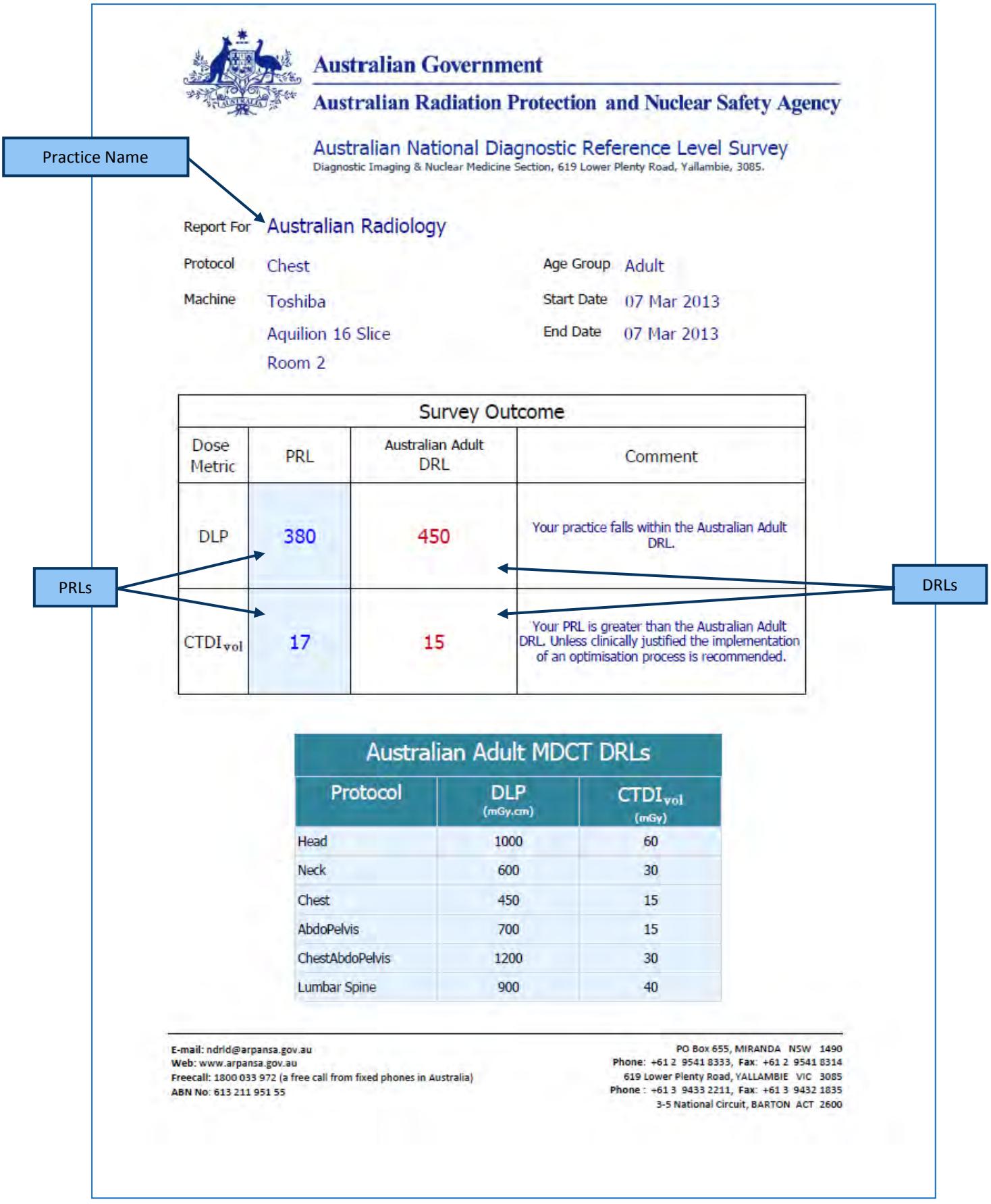
- Practice Name
- Protocol
- CT machine Make, Model and Additional Identifier
- Age Group
- Survey Start and End Date

Below this is a table titled **'Survey Outcome'**.
This table shows the PRLs (in terms of DLP and $CTDI_{vol}$) for the survey in blue, the corresponding national Australian adult DRLs in red, and a comment comparing the PRL and DRL for both dose metrics.

If your PRL is below the Australian Adult DRL then no comment will be made. If your PRL is above the national DRL then a comment suggesting protocol optimisation will be made.

Note: by definition, 25% of practices will have a PRL that is above the national DRL.

At the bottom of the page is a table summarising the Australian DRLs for MDCT in terms of DLP and $CTDI_{vol}$.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
Australian National Diagnostic Reference Level Survey
Diagnostic Imaging & Nuclear Medicine Section, 619 Lower Plenty Road, Yallambie, 3085.
Practice Name
Report For Australian Radiology
Protocol Chest
Machine Toshiba
Aquilion 16 Slice
Room 2
Age Group Adult
Start Date 07 Mar 2013
End Date 07 Mar 2013
Survey Outcome
Dose Metric
PRL
Australian Adult DRL
Comment
DLP
380
450
Your practice falls within the Australian Adult DRL.
CTDIvol
17
15
Your PRL is greater than the Australian Adult DRL. Unless clinically justified the implementation of an optimisation process is recommended.
PRLs
DRLs
Australian Adult MDCT DRLs
Protocol
DLP (mGy.cm)
CTDIvol (mGy)
Head 1000 60
Neck 600 30
Chest 450 15
AbdoPelvis 700 15
ChestAbdoPelvis 1200 30
Lumbar Spine 900 40
E-mail: ndrld@arpansa.gov.au
Web: www.arpansa.gov.au
Freecall: 1800 033 972 (a free call from fixed phones in Australia)
ABN No: 613 211 951 55
PO Box 655, MIRANDA NSW 1490
Phone: +61 2 9541 8333, Fax: +61 2 9541 8314
619 Lower Plenty Road, YALLAMBIE VIC 3085
Phone : +61 3 9433 2211, Fax: +61 3 9432 1835
3-5 National Circuit, BARTON ACT 2600

6.3.2 A Guide to Page 2

This page shows two graphs, the first graph is a histogram showing the spread of national data in terms of DLP for the relevant protocol, with a dashed red line showing the Australian DRL value.

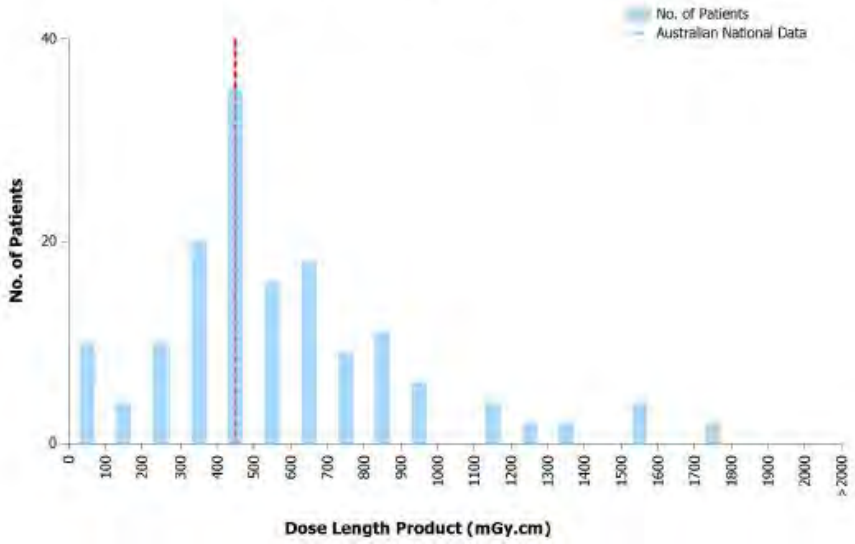
The second graph is a histogram showing the spread of DLP values recorded in the submitted survey. The red dashed line on the histogram shows the Australian DRL and the solid blue line on the histogram shows your Practice Reference Level (PRL), for the submitted survey.

Your PRL is simply the median DLP value for the survey.

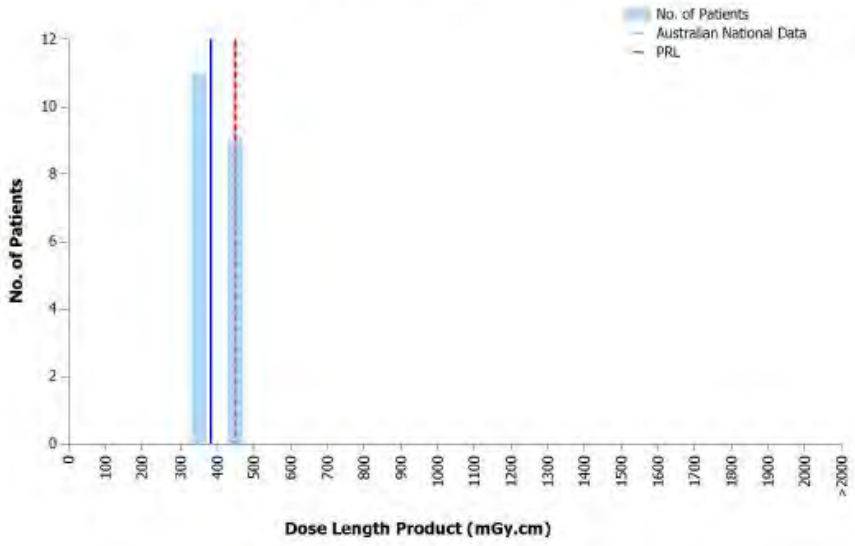
Australian National Diagnostic Reference Level Survey

Protocol - Chest **Age Group** - Adult **DLP**

Australian National Data



Australian Radiology



Page 2 of 4

6.3.3 **A Guide to Page 3**

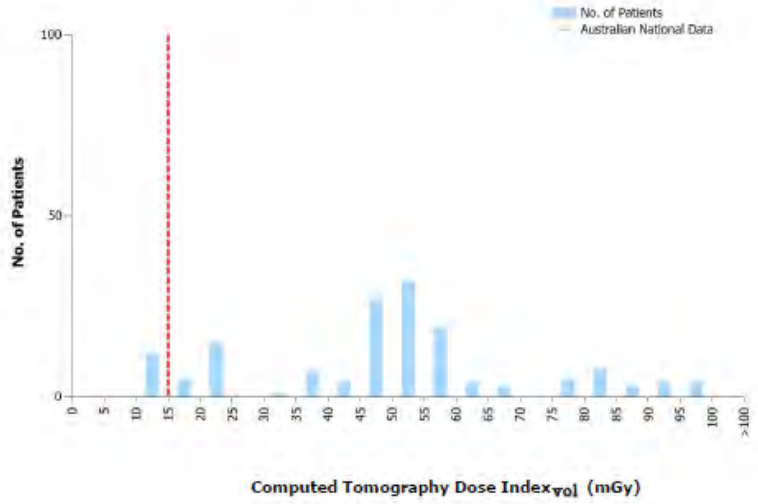
This page also shows two graphs, the first graph is a histogram showing the spread of national data in terms of $CTDI_{vol}$ for the relevant protocol, with a dashed red line showing the Australian DRL value.

The second graph is a histogram showing the spread of $CTDI_{vol}$ values recorded in the submitted survey. The red dashed line on the histogram shows the Australian DRL and the solid blue line on the histogram shows your Practice Reference Level (PRL), for the submitted survey.

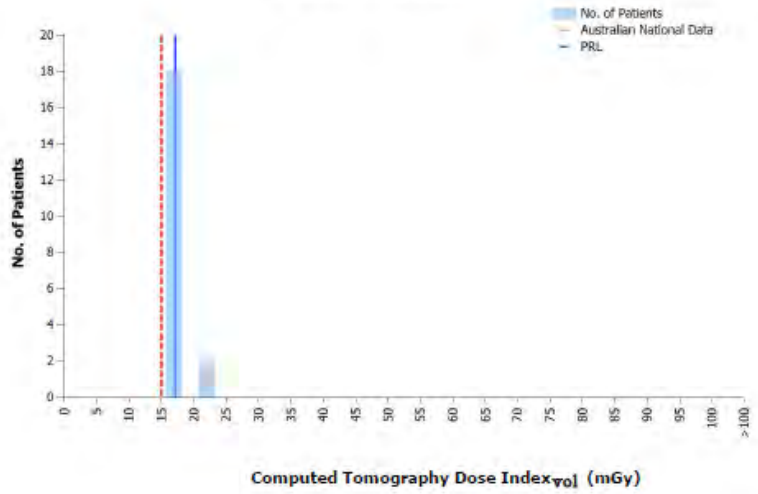
Your PRL is simply the median $CTDI_{vol}$ value for the survey.

Protocol - Chest **Age Group** - Adult **$CTDI_{vol}$**

Australian National Data



Australian Radiology



Carl –Magnus Larsson
CEO
ARPANSA

If you have any enquiries about this report please contact the
Diagnostic Imaging and Nuclear Medicine Section at ARPANSA
Email: ndrld@arpansa.gov.au
Phone: 1800 033 972

6.3.4 A Guide to Page 4

This page shows a record of the technical settings and patient dose data for the submitted survey.

At the top of the page there is a summary of the following

- Practice Name
- Protocol
- CT Machine Make, Model and Additional Identifier
- Age Group
- Survey Start and End Date

Below this summary is a copy of the technical scan settings entered for the survey as well as the patient data entry table. You can cross reference the patient data with the corresponding histograms on pages two and three.

This page is provided so you can make comparisons between surveys completed for the same protocol over time.

Australian National Diagnostic Reference Level Survey

Practice Name Australian Radiology

Protocol	Chest	Age	Adult
Machine	Toshiba	Start Date	07 Mar 2013
	Aquilion 16 Slice	End Date	07 Mar 2013
	Room 2		

kVp	120	Rotation Time	0.80	Reconstruction Slice Width	5's
mAs	200.00	No. of Phases	1	Reconstruction Algorithm Kernel	standard chest
Pitch	1.40	Helical/Axial	Helical	Scan Field of View	
Contrast	NO	Detector Configuration	4 X 0.50	Beam Shape Filter	bow tie
Dose Modulation	YES	Iterative Reconstruction	No	Noise Index	11

Comments
standard chest protocol, mAs is reference value

Patient	Average $CTDI_{vol}$	Total DLP	Patient Weight	Patient Age	Sex
1	15.00	350.00	64.00	81	F
2	18.00	400.00	78.00	46	M
3	20.00	450.00	82.00	51	F
4	17.00	380.00	95.00	36	F
5	15.00	350.00	58.00	55	F
6	15.00	350.00	72.00	72	F
7	16.00	350.00	68.00	63	M
8	20.00	450.00	79.00	54	F
9	18.00	400.00	92.00	48	M
10	15.00	350.00	46.00	65	M
11	18.00	400.00	98.00	68	M
12	15.00	350.00	87.00	69	F
13	15.00	350.00	68.00	62	F
14	18.00	400.00	76.00	59	M
15	18.00	400.00	73.00	54	F
16	18.00	400.00	68.00	72	M
17	15.00	350.00	94.00	73	M
18	17.00	380.00	52.00	68	M
19	15.00	350.00	71.00	67	F
20	18.00	400.00	76.00	49	M

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7 CONTACT US

7.1 CAN YOU CONTACT US?

Yes. The Australian National Diagnostic Reference Level Survey has been designed with user accessibility in mind, however, we are continually looking for ways to improve the system.

If you have any problems with the system, questions, or suggestions for improvements please feel free to contact us.

7.2 HOW TO CONTACT US

There are a number of ways you can contact us.

You can write to us at-

Diagnostic Imaging and Nuclear Medicine Section
ARPANSA
619 Lower Plenty Road
Yallambie
VIC 3085
Australia

You can call us on-

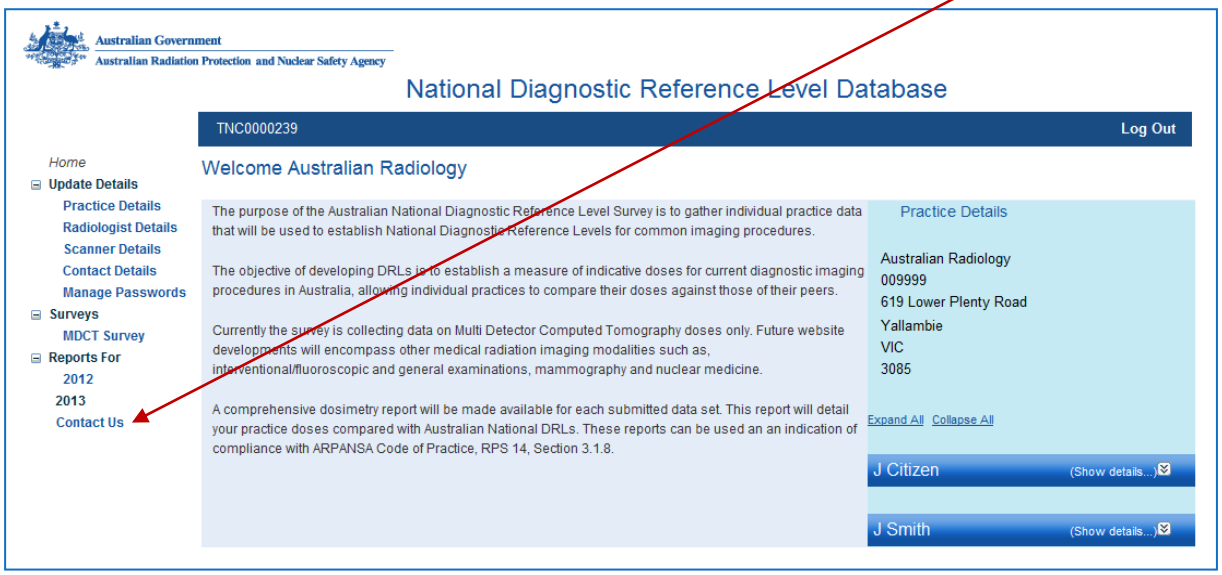
1800 033 972 (a free call from anywhere in Australia)

You can email us at-

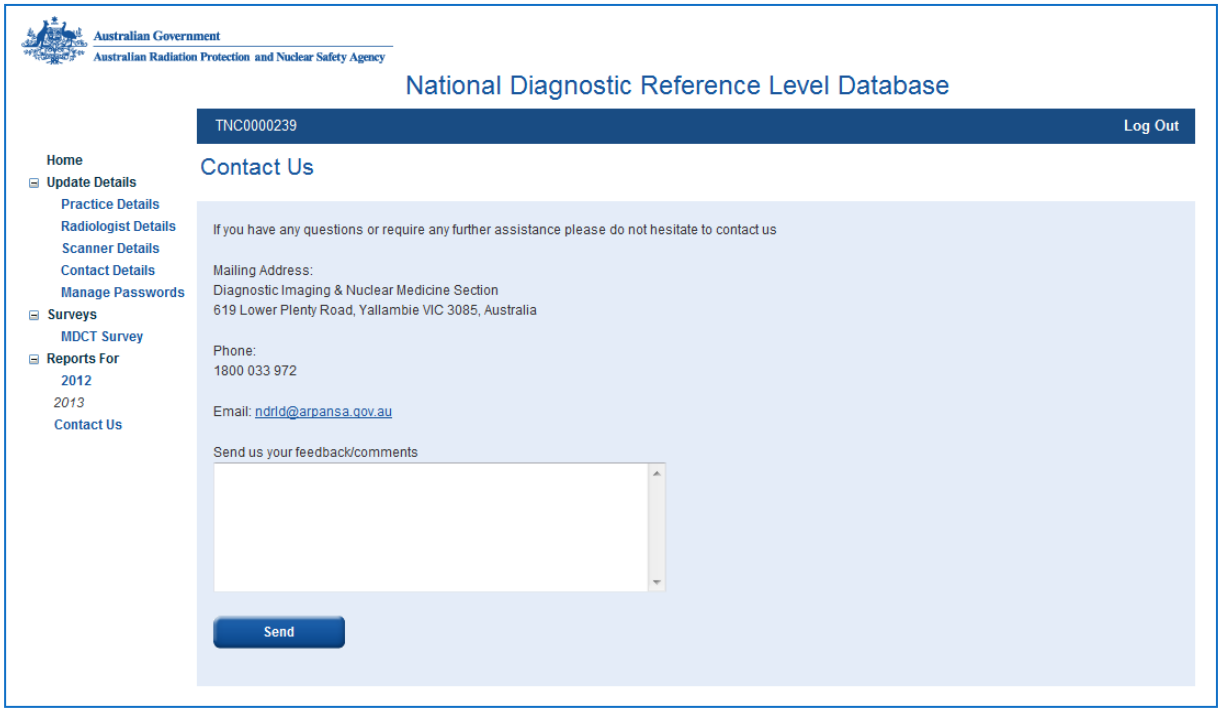
ndrld@arpansa.gov.au

7.2.1 If you are logged in

If you are logged in to the survey you can also use the **Contact Us** page to send us a message. To do this you should select 'Contact Us' from the menu on the left hand side of the screen.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
National Diagnostic Reference Level Database
TNC0000239
Log Out
Home
Update Details
Practice Details
Radiologist Details
Scanner Details
Contact Details
Manage Passwords
Surveys
MDCT Survey
Reports For
2012
2013
Contact Us
Welcome Australian Radiology
The purpose of the Australian National Diagnostic Reference Level Survey is to gather individual practice data that will be used to establish National Diagnostic Reference Levels for common imaging procedures.
The objective of developing DRLs is to establish a measure of indicative doses for current diagnostic imaging procedures in Australia, allowing individual practices to compare their doses against those of their peers.
Currently the survey is collecting data on Multi Detector Computed Tomography doses only. Future website developments will encompass other medical radiation imaging modalities such as, interventional/fluoroscopic and general examinations, mammography and nuclear medicine.
A comprehensive dosimetry report will be made available for each submitted data set. This report will detail your practice doses compared with Australian National DRLs. These reports can be used an an indication of compliance with ARPANSA Code of Practice, RPS 14, Section 3.1.8.
Practice Details
Australian Radiology
009999
619 Lower Plenty Road
Yallambie
VIC
3085
Expand All
Collapse All
J Citizen
(Show details...)
J Smith
(Show details...)

This will take you to the **Contact Us** page.



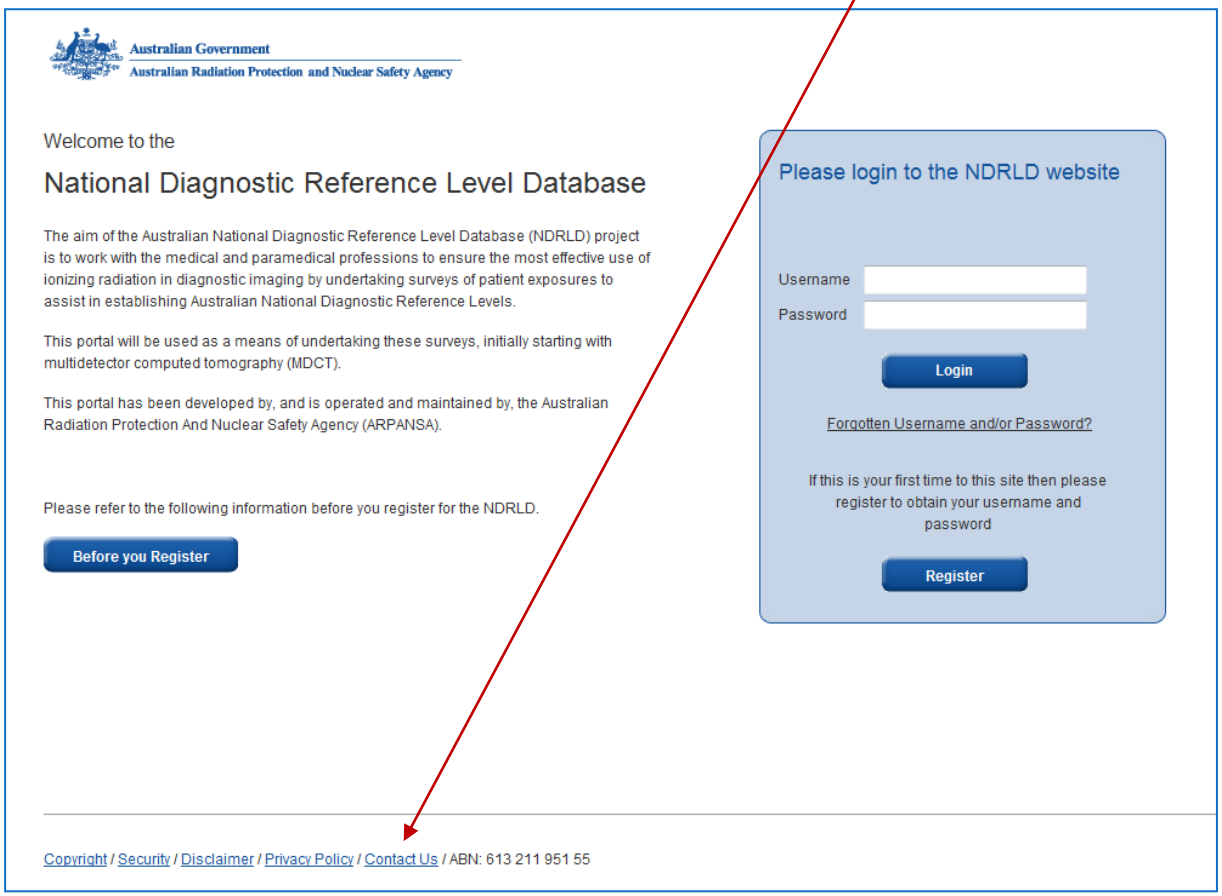
On this page you will find our mailing address, phone number and email address.

There is also an option to type in a message. To use this option you should type your message in the box provided and select

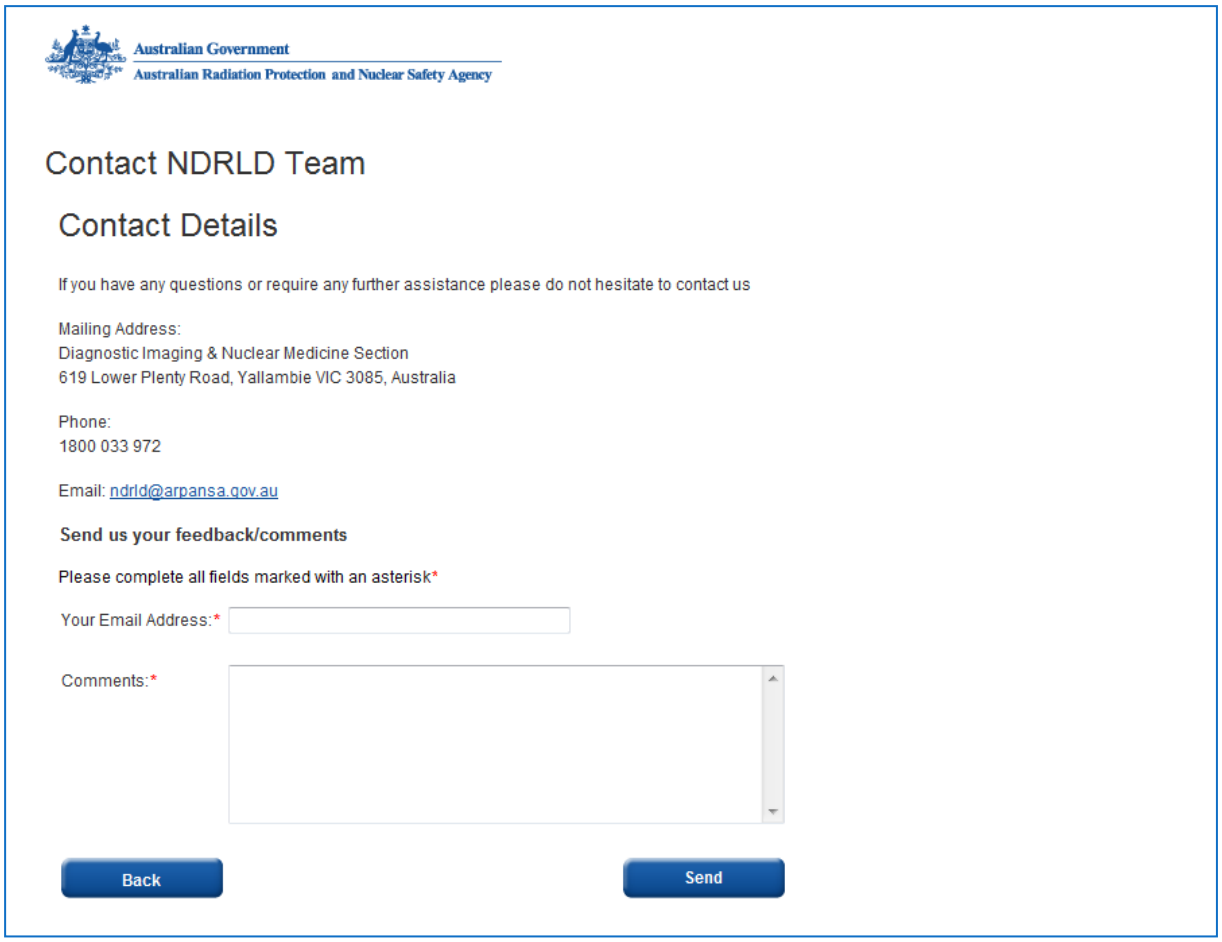
. This will automatically send your message as an email to the NDRLD mailbox with your username as an identifier. Once your message has been sent you will be notified that *'Your message successfully sent to ARPANSA'*.

7.2.2 If you are not logged in

You can also use the website to send us a message if you are not logged in to the survey. From the Login page you should select 'Contact Us' from the bottom of the screen.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
Welcome to the
National Diagnostic Reference Level Database
The aim of the Australian National Diagnostic Reference Level Database (NDRLD) project is to work with the medical and paramedical professions to ensure the most effective use of ionizing radiation in diagnostic imaging by undertaking surveys of patient exposures to assist in establishing Australian National Diagnostic Reference Levels.
This portal will be used as a means of undertaking these surveys, initially starting with multidetector computed tomography (MDCT).
This portal has been developed by, and is operated and maintained by, the Australian Radiation Protection And Nuclear Safety Agency (ARPANSA).
Please refer to the following information before you register for the NDRLD.
Before you Register
Please login to the NDRLD website
Username
Password
Login
Forgotten Username and/or Password?
If this is your first time to this site then please register to obtain your username and password
Register
Copyright / Security / Disclaimer / Privacy Policy / Contact Us / ABN: 613 211 951 55

This will take you the **Contact NDRL Team** page.


Australian Government
Australian Radiation Protection and Nuclear Safety Agency
Contact NDRLD Team
Contact Details
If you have any questions or require any further assistance please do not hesitate to contact us
Mailing Address:
Diagnostic Imaging & Nuclear Medicine Section
619 Lower Plenty Road, Yallambie VIC 3085, Australia
Phone:
1800 033 972
Email: ndrld@arpansa.gov.au
Send us your feedback/comments
Please complete all fields marked with an asterisk*
Your Email Address:*
Comments:*
Back
Send

On this page you will find our mailing address, phone number and email address.

There is also an option to type in a message. To use this option you should type your email address in the box provided, type your message in the box below and select

. This will automatically send your message as an email to the NDRLD mailbox with your email address as an identifier. Once your message has been sent you will be notified that *'Your message successfully sent to ARPANSA'*.

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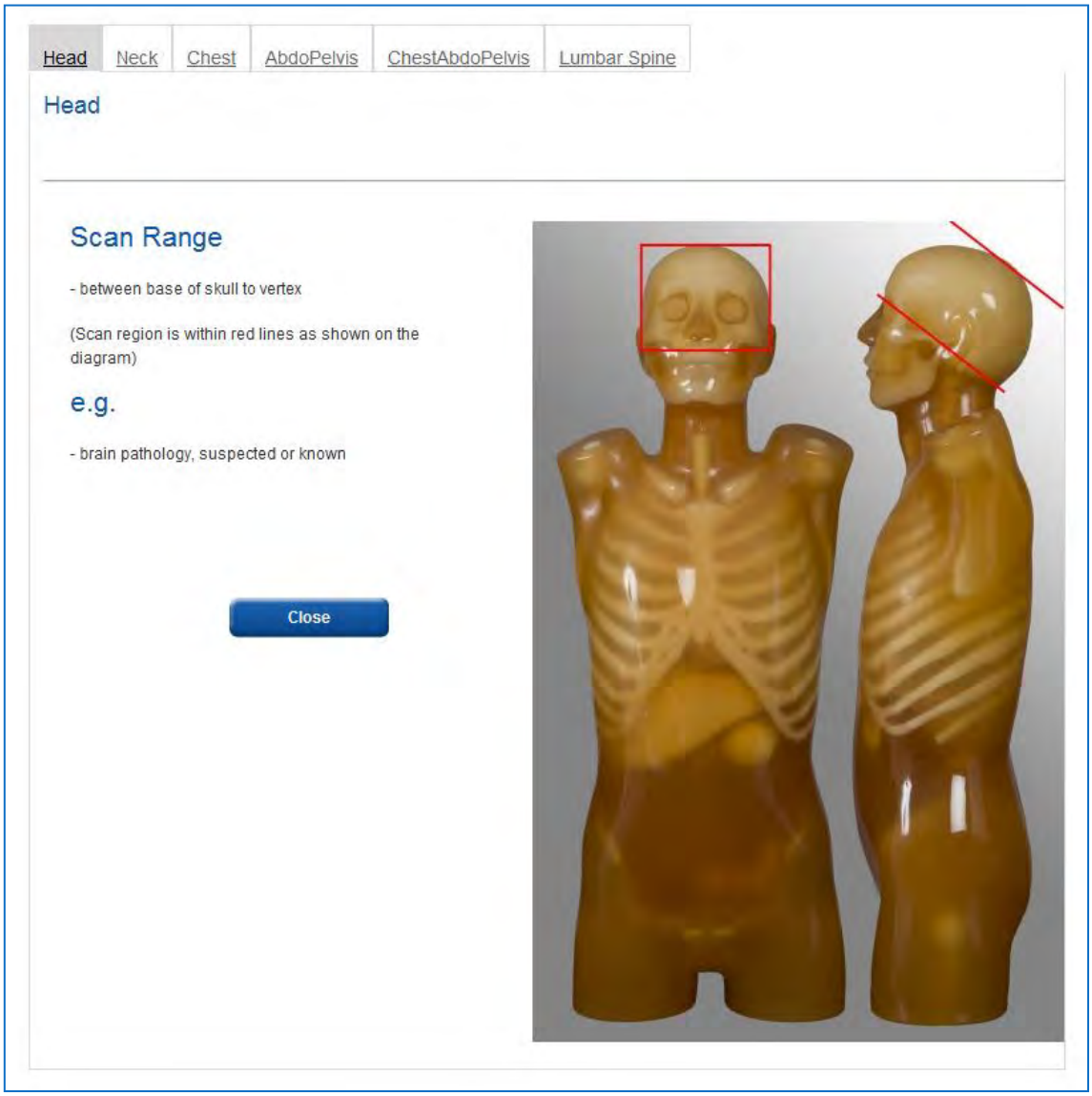
APPENDIX A PROTOCOL SCAN MARGINS

The survey is collecting data on six common protocols. We have defined scan margins for each protocol with the intention that any scans performed at your practice that fall within the scan margins can be included in the survey.

The red lines on each of the following images represent the limits of each scan range. A verbal description of the scan range is also given.

Head



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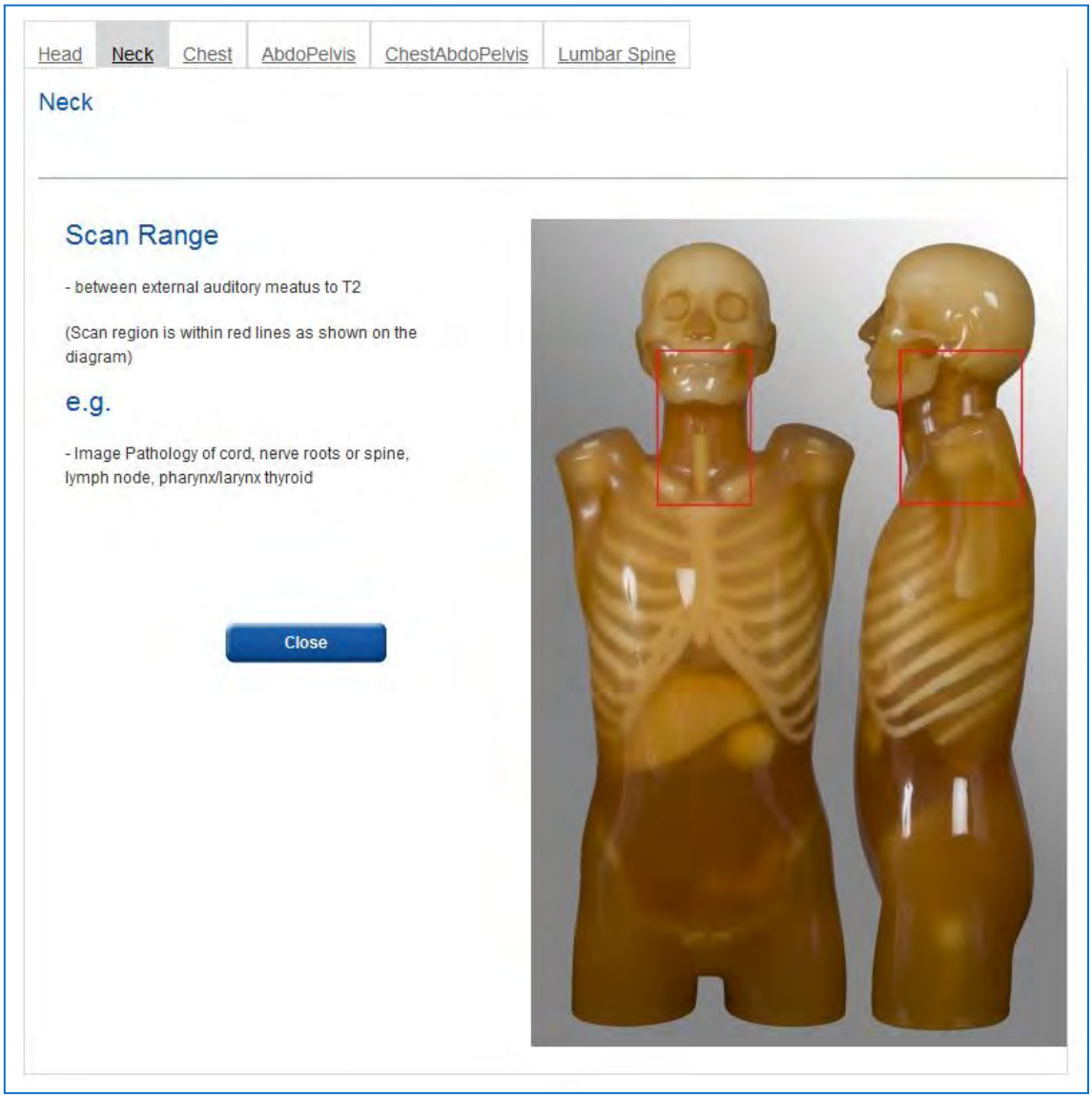
Neck



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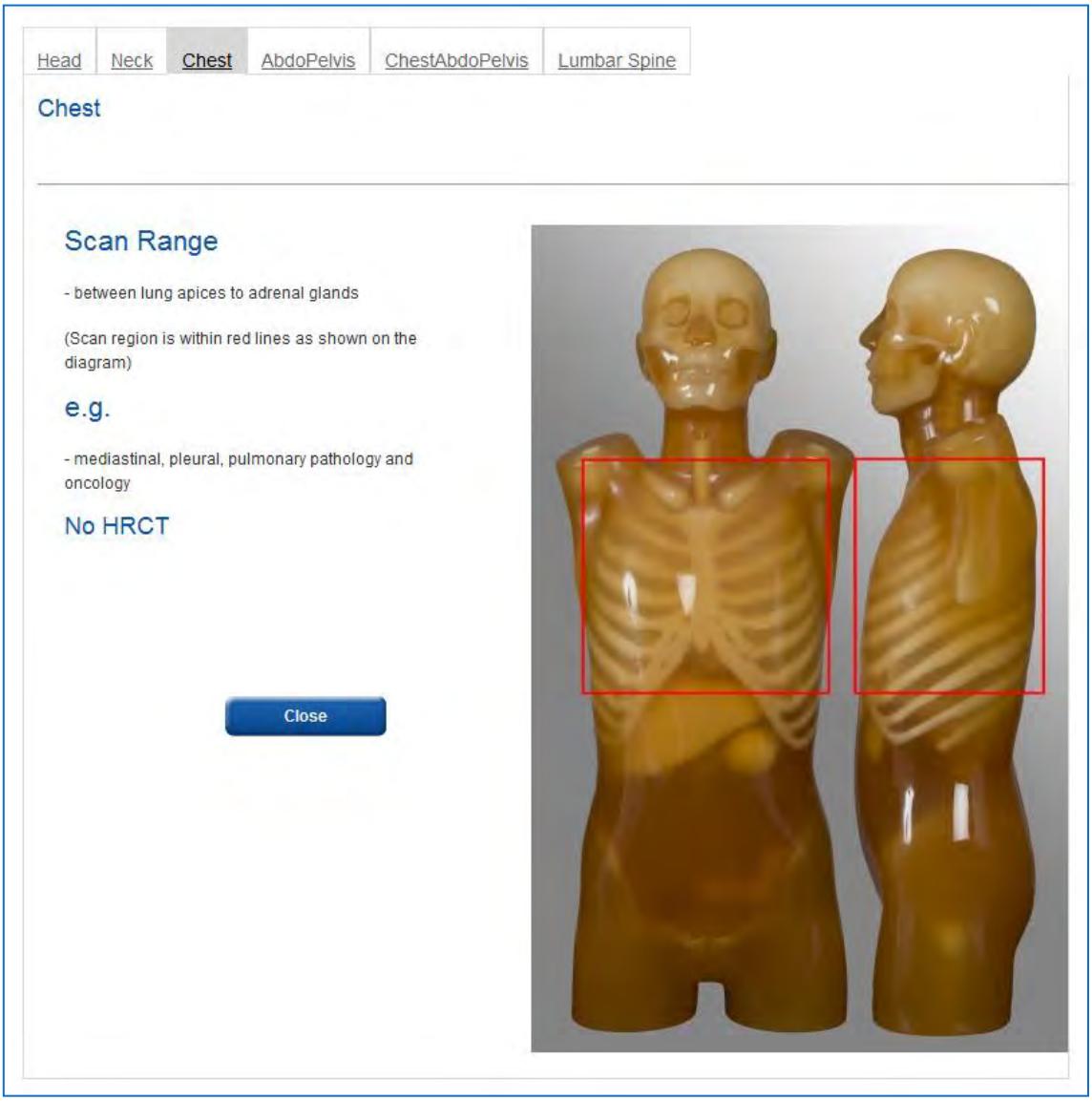
Chest



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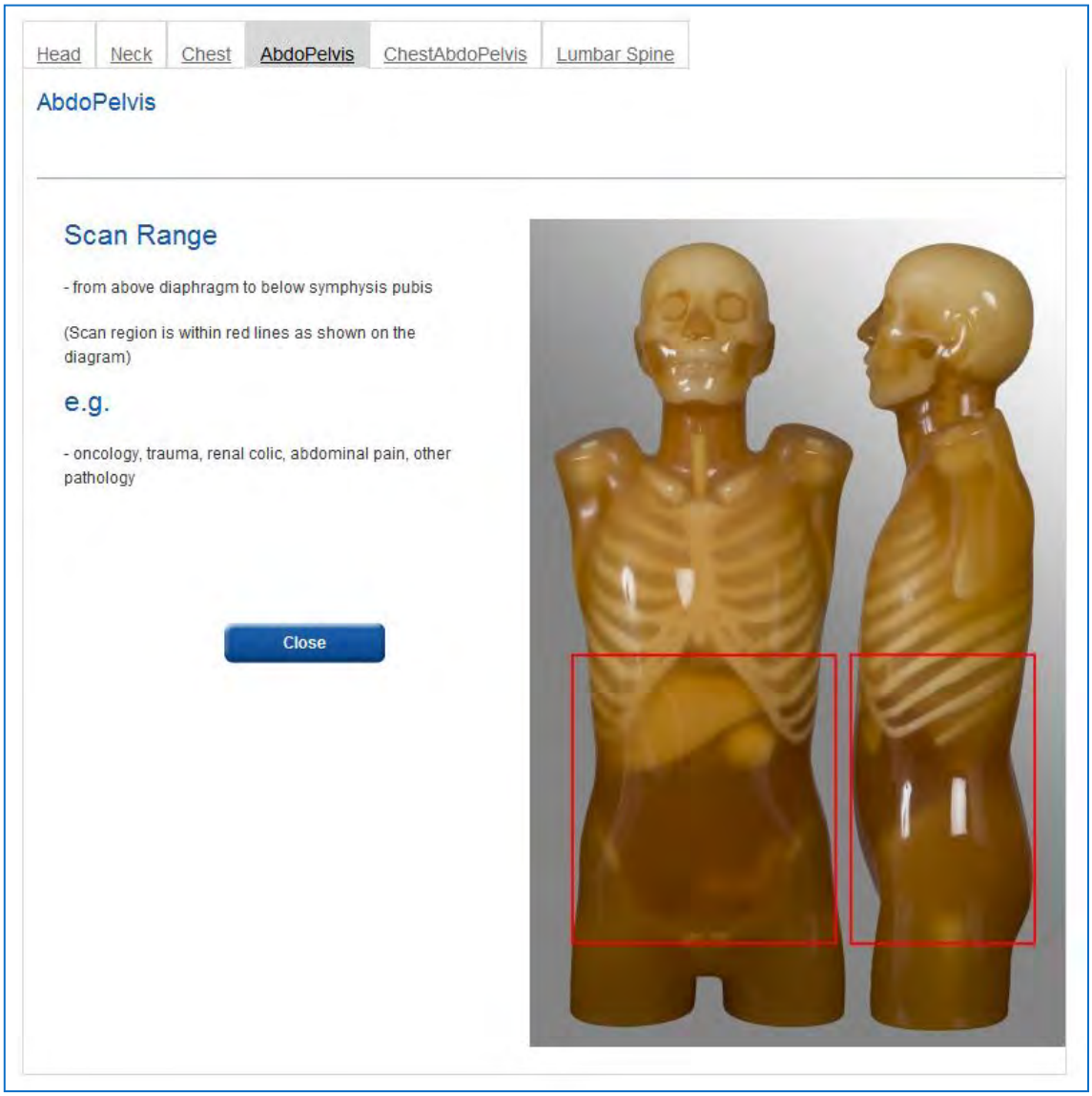
AbdoPelvis



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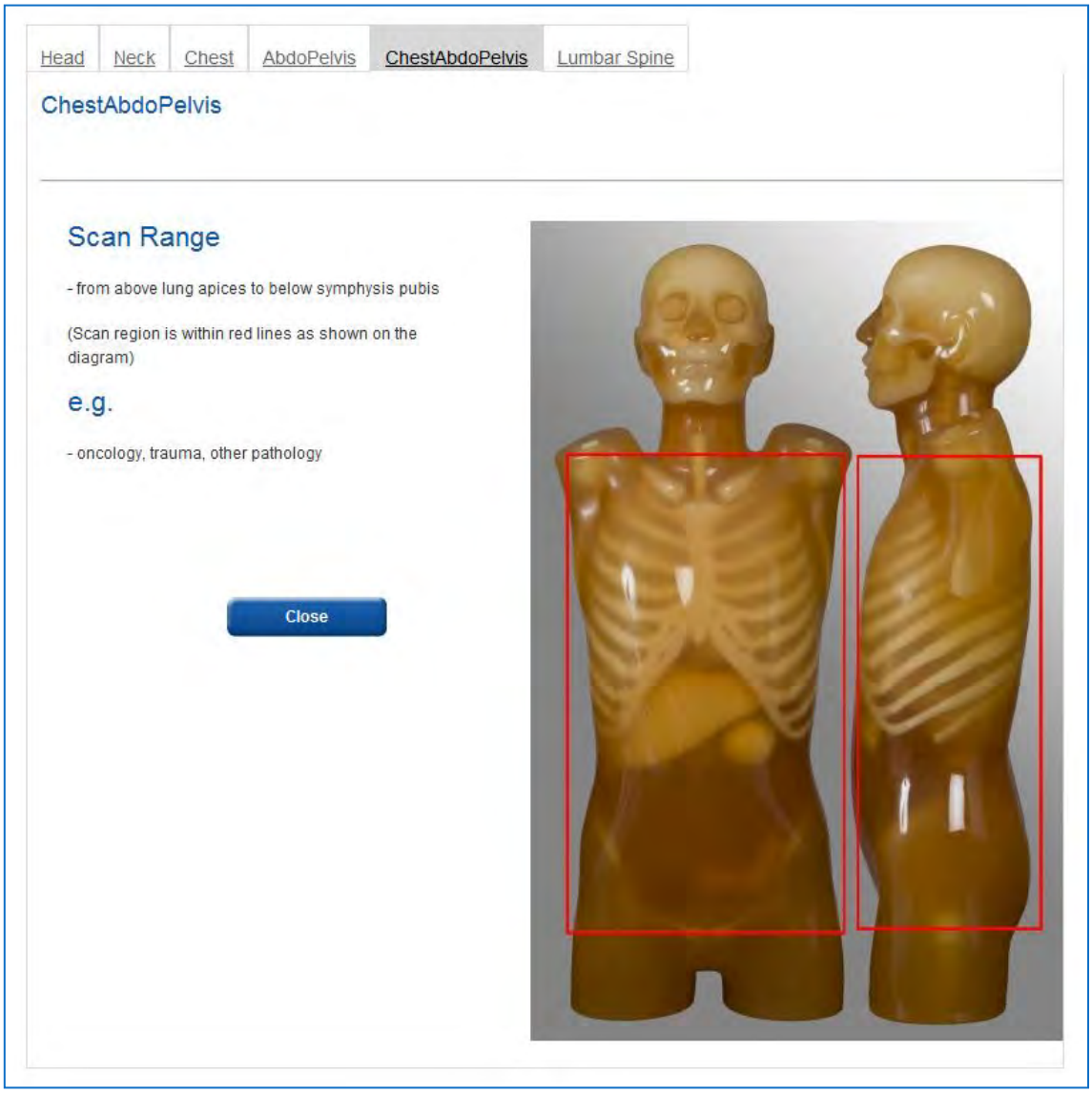
ChestAbdoPelvis



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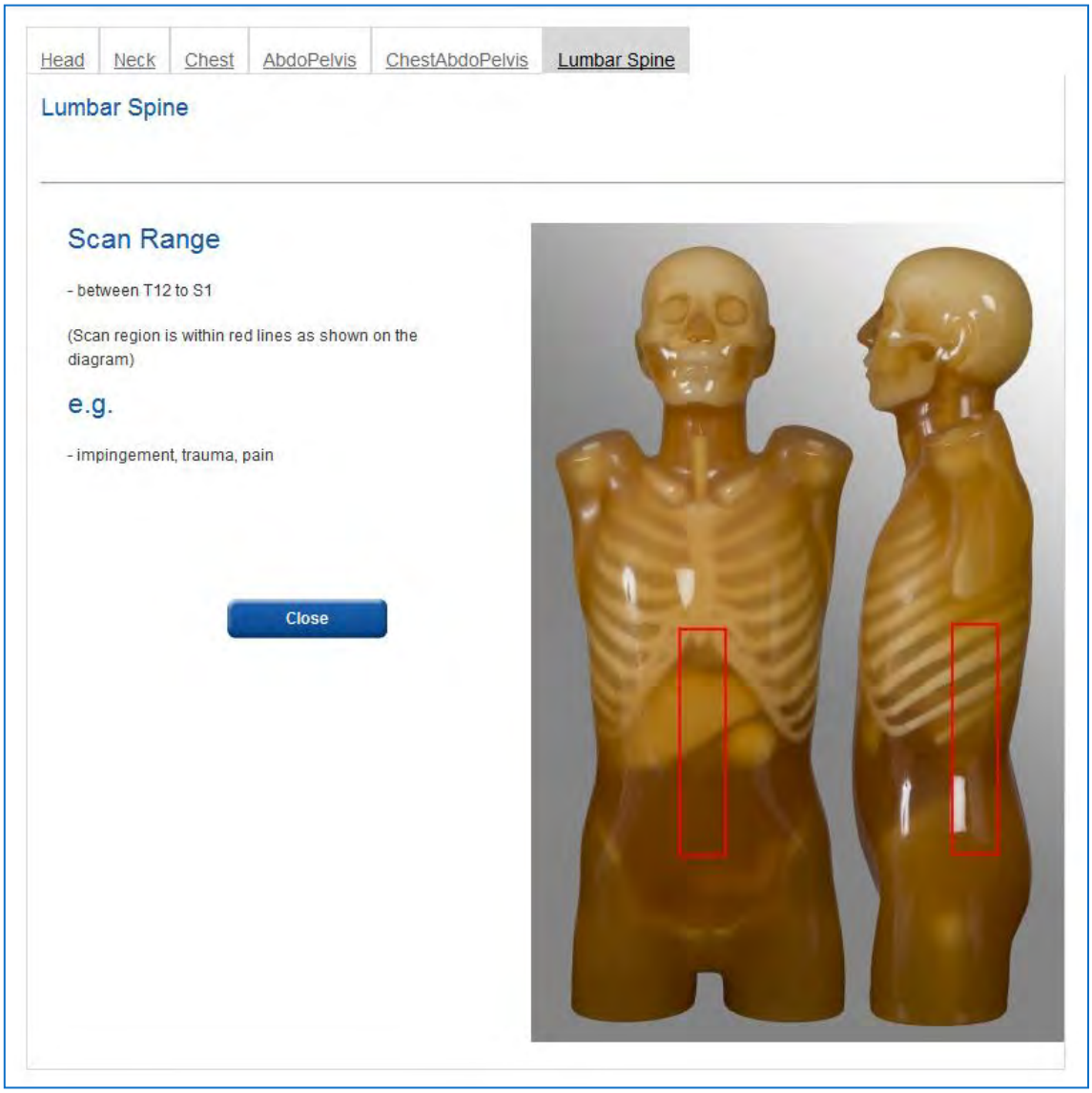
Lumbar Spine



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APPENDIX B SCAN SETTINGS TECHNICAL INFORMATION

Beam Shaping Filter	The filter used to shape the x-ray beam to the body habitus *What filter was used to shape the x-ray beam? e.g. - bow tie, large bow, etc.*
Comments	Any additional comments about the survey *To better define the specific protocol (e.g. what mAs value was used, starting, reference etc, if it was a survey of paediatric patients was the 16 or 32 cm reference phantom used for DLP and $CTDI_{vol}$ values) and/or something relevant to you at the practice to help you differentiate between surveys.*
Contrast	Contrast used during the image acquisition *Was contrast used during the image acquisition? (YES/NO)*
Detector Configuration	The geometrical configuration of detectors used during image acquisition The first part is the number of detectors in the z-axis *How many detectors were used in the image acquisition? (must be a whole number between 0 and 400)* The second part is the width of each detector *What is the width (in mm) of each detector? (must be a number between 0 and 10 with a maximum of three decimal places)*
Dose Modulation	Also known as Automatic Dose Modulation, Automatic Exposure Control and Tube Modulation The nomenclature of this parameter will be manufacturer dependent and subject to change over time, e.g. Smart-mA, DoseRight, Care Dose, etc. *Was Dose Modulation used during the image acquisition? (YES/NO)*

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Helical or Axial	The mode of acquiring the image • **Helical** (also known as **Spiral**) refers to the method of image acquisition in which the gantry is continuously rotating while objects are simultaneously being translated in the z-direction • **Axial** refers to the method of image acquisition in which each individual slice is measured at a fixed z-position followed by an appropriate translation in the z-direction *Was the image acquired Helically or Axially? (Helical/Axial)*
Iterative Reconstruction	The application of adaptive statistical iterative reconstruction algorithm(s). *Was iterative reconstruction used to process the image? (Yes/No)*
kVp	kilo Voltage peak *What was the set kVp for the protocol? (must be a whole number between 70 and 150)*
LSPN	Location Specific Practice Number The LSPN is a unique identifier determined by Medicare which is required to be submitted as part of each Medicare Claim *What is the LSPN for your practice? (must be given as a six digit number with leading zeros)*
mAs	milli Ampere second *What is the starting or reference mAs for your image acquisition protocol? (must be a number between 50 and 1000 with a maximum of two decimal places)*
Noise Index	The Image Quality Reference Parameter for Dose Modulation Also known as • Reference Image (Philips) • Quality Reference mAs (Siemens) • Standard deviation (%), low-dose or high quality (Toshiba) It is expected that the nomenclature of these parameters will change over time *(must be given as a whole number between 0 and 999)*

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No. of Phases	The number of phases in the image acquisition *How many phases were in the complete scan, not including the scout/topogram view? (1/2/3/4)*
Pitch	The ratio of the table feed to the total slice collimation • Pitch = d/M×S Where • d is the number of 360° rotations • M is the number of slices • S is the individual slice collimation width • M×S is the isocentric beam width *(must be a number between 0 and 3 with a maximum of three decimal places)*
Reconstruction Algorithm/Kernel	The Algorithm/Kernel used in the image reconstruction process *What Algorithm/Kernel was used in the image reconstruction process? (e.g. bone, standard, soft, etc.)*
Reconstruction Slice Width	The slice width (in mm) of the reconstructed image *What was the slice width (in mm) in the reconstructed image? (can be multiples e.g. 2, 5, 10)*
Rotation Time	The time (in sec) of one 360° rotation *What is the rotation time (in sec) during image acquisition (must be a number between 0 and 2 with a maximum of two decimal places)*
Scan Field of View	The size (in cm) of the field of view used in the image acquisition *What is the scan field of view (in cm) during image acquisition? (can also be non numeric, e.g. large)*

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APPENDIX C PATIENT DATA INFORMATION

For each survey 20 patient data sets are required. Each patient data set includes the $CTDI_{vol}$, the DLP, the Patient Weight, the Patient Age and the Patient Gender.

$CTDI_{vol}$- The $CTDI_{vol}$ should be displayed on the scanner console at either the beginning or end of the scan.

DLP- The DLP should be displayed on the scanner console at either the beginning or end of the scan.

Patient Weight - This can be obtained by simply asking the patient. Accuracy to within 2 kg is sufficient.

Patient Age - The patient age in years (months for the Baby/Infant age group)

Patient Gender - Either Male or Female

It may be useful to have a set of scales handy for patient measuring patient weight.

Acquisitions involving multiple runs

For acquisitions that involve multiple runs the $CTDI_{vol}$ and DLP that represent the entire procedure should be recorded

e.g. If you perform a ChestAbdoPelvis scan as two separate scans, i.e. as a Chest scan then an AbdoPelvis scan, and you obtain a $CTDI_{vol}$ and DLP for each separate scan, then the $CTDI_{vol}$ and DLP recorded on the data entry page should be calculated as such

The $CTDI_{vol}$ recorded should be the ***average*** of the $CTDI_{vol}$ from each part of the scan

$$CTDI_{vol} = \frac{(CTDI_{vol})_{Chest} + (CTDI_{vol})_{AbdoPelvis}}{2}$$

The DLP recorded should be the ***sum*** of the DLPs from each part of the scan

$$DLP = (DLP)_{Chest} + (DLP)_{AbdoPelvis}$$

e.g. If you perform a two phase Head scan, with and without contrast, and you obtain a $CTDI_{vol}$ and DLP for each phase, then the $CTDI_{vol}$ and DLP recorded on the data entry page should be calculated as such

The $CTDI_{vol}$ recorded should be the ***average*** of the $CTDI_{vol}$ from each phase of the scan

$$CTDI_{vol} = \frac{(CTDI_{vol})_{Phase\ 1} + (CTDI_{vol})_{Phase\ 2}}{2}$$

The DLP recorded should be the ***sum*** of the DLPs from each phase of the scan

$$DLP = (DLP)_{Phase\ 1} + (DLP)_{Phase\ 2}$$

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APPENDIX D GLOSSARY OF TERMS

AEC - Automatic Exposure Control

Variation of the nominal tube current selected at the start of the examination

Additional Identifier - An Additional Identifier for your MDCT Scanner

This is a mandatory free field in which you must enter some words relating to your MDCT Scanner.

For example,

- the physical location of the MDCT Scanner, e.g. 2nd Floor, East Wing or Room 210
- the department the MDCT Scanner is used in, e.g. Emergency CT

This is meant as a tool to help you at your practice differentiate between your MDCT Scanners, particularly if you have more than one of the same make and model

Anatomical Protocol - The specifications of the scan in terms of body region margins and indicators

ARPANSA - Australian Radiation Protection and Nuclear Safety Agency

http://www.arpansa.gov.au/

Axially - Mode of acquiring image

Conventional method of CT scanning in which each requested slice is measured at a fixed z-position followed by an appropriate transport of the object in the z-direction

Beam Shaping Filter - The filter used to shape the x-ray beam to the body habitus

Contrast - Contrast used during the image acquisition

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$CTDI_{vol}$ - Computed Tomography Dose Index volume

$$CTDI_{vol} = {}^{CTDI_w}/_{Pitch}$$

$CTDI_w$ - Computed Tomography Dose Index weighted

$$CTDI_w = {}^{1}/_{3}\,CTDI_c + {}^{2}/_{3}\,CTDI_p$$

Detector Configuration - The geometrical configuration of detectors used during image acquisition

Dose Constraint - Dose Constraint

A prospective and source-related restriction on the individual dose from a source, which provides a basic level of protection for the most highly exposed individuals from a source, and serves as an upper bound on the dose in optimisation of protection for that source.
There are no dose constraints for medical procedures.

DLP - Dose Length Product

$$DLP(mGy.cm) = CTDI_{vol}(mGy) \times Scan\ Length\ (cm)$$

Dose Modulation - Also known as Automatic Dose Modulation, Automatic Exposure Control, Tube Modulation

DRL - Diagnostic Reference Level

The 75th percentile value of a range of medians for a population of practices for a single anatomical protocol and age group.

Helically - Mode of acquiring image

Method of CT scanning with continuous gantry rotation and simultaneous continuous object translation in the z-direction. In contrast to the sequential scanning technique.

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Iterative Reconstruction	Iterative Reconstruction The application of adaptive statistical iterative reconstruction algorithm(s).
kVp -	kilo Voltage peak
LSPN -	Location Specific Practice Number Where a practice site provides diagnostic imaging or radiation oncology services, Health Insurance Amendment (Diagnostic Imaging, Radiation Oncology and Other Measures) Act 2003 requires these sites to be registered with Medicare Australia in order for Medicare benefits to be payable. Registered sites and bases for mobile equipment are allocated a Location Specific Practice Number (LSPN). The LSPN is a unique identifier which is required to be submitted as part of each Medicare claim for diagnostic imaging or radiation oncology services. Medicare Australia has an online data base of registered LSPNs that can be searched via their website http://www.medicareaustralia.gov.au/provider/medicare/lspn.jsp
mAs -	milli Ampere seconds
MDCT -	Multi Detector Computed Tomography Also known as Multi Slice Computed Tomography (MSCT)
Noise Index -	Image Quality Reference Parameter for AEC Also known as Reference Image (Philips), Quality Reference mAs (Siemens) and Standard Deviation (%), or standard, low dose or high quality (Toshiba) It is expected that the nomenclature of these parameters will change over time
No. of Phases -	The number of phases in the image acquisition

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Pitch - The ratio of table feed and total slice collimation

$$Pitch = {}^{d}/_{M \times S}$$

Where *d* *is the number of 360 rotations*
M *is the number of slices*
S *is the individual slice collimation*
M×S *is the isocentric beam width*

PRL - Practice Reference Level

The median value of the spread of DLPs or $CTDI_{vol}$s for an individual practice for a single protocol.

A practice reference level is defined by the protocol chosen, the age group and the scanner it was acquired on. Therefore an LSPN with multiple scanners could have multiple PRLs for the same age group and protocol. Each individual protocol should then be compared against the Australian National DRL.

Reconstruction Algorithm/ Kernel - The Algorithm or Kernel used in the image reconstruction process

Reconstruction Slice Width - The slice width in mm of the reconstructed image

Rotation Time - The time in seconds of one 360° rotation

Scan Field of View - The size in cm of the field of view used in the image acquisition

Stochastic Effects - Cancer and Heritable Effects

Cancer and heritable effects involving either cancer development in exposed individuals owing to mutation of somatic cells or heritable disease in their offspring owing to mutation of reproductive cells. Malignant disease and heritable effects for which the probability of an effect occurring, but not its severity, is regarded as a function of dose without threshold.

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